ITEMS OF INTEREST.

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Editorial.

THE EFFECTS OF PREGNANCY AND MOTHERHOOD ON THE TEETH.

A case in point, which gave us much reflection and final wisdom, occurred some years ago. A lady of standing, for whom we had inserted some "excellent fillings," a year previously, came into our office exclaiming: "Why, Doctor; what kind of gold did you use in filling my teeth the last time I was here? Just see how dark the gold is, and how bad my teeth have become. Your work never served me so poorly before."

Sure enough, her teeth were almost ruined; some of the gold fillings had actually dropped out, and there was scarcely one remaining around which there was not marginal decay. There was only one consolation, and that was, for you know "misery likes company," teeth we had filled were no worse than the rest; all were in a sad case.

The first thought was: Here must be a tremendous acid mouth, and that is "the enemy that has done this." But the slimy, ropy saliva soon convinced us that the condition of the mouth was alkaline; yet the dark appearance of the gold certainly exhibited the effects of an acid, as did the soft, chalky condition of the teeth, and the white, laminated character of the decay—and the strongest kind of acid at that. It was just one of those cases we so often meet as the result of motherhood.

We finally ventured: "My dear woman, I did not know you had been to Boston since you were here! This is one of the results. The consequent exhaustion of your system, and specially the drainage of important material to supply your child has done this. Though your mouth is in an alkaline condition, in the intersticies of your teeth there has generated nitric acid." (We did not know *then* the philosophy of this, though the *fact* stared us in the face. Now, thanks be to Dr. Geo. Watts, we see that it was ammonia made the alkalinity, and the rapid decomposition of this in the intersticies of the teeth that made the nascent nitric acid.)

Well, what could be done? We removed nearly every filling—old and new—in her teeth, and filled them with phosphate of zinc, first thoroughly wiping teeth, gums and cavities with dilute carbolic acid. We then directed her to live as much as possible on fresh acid fruit, to take plenty of exercise in the open air, and do every thing possible to tone up the system. The fillings we had then inserted, we assured her were but temporary, and might have to be removed in three months. After she had weaned her child, and her health was established, we would change the fillings for something better.

"Were you not afraid the nitric acid would destroy your oxyphosphate?" Yes, we were then, but should not be so much so now; and the results of this case proved there was little ground for such fears. The little pockets containing the nitric acid, and the cause of the generation of that acid, were both removed. We were so sure these fillings would be short lived, we required her to return in three months; but in three months, and in six months, they were still in good condition. We believe if we had chosen amalgam, or tin, or gold instead of phosphate of zinc, we should not have so completely arrested decay. The soft, laminated dentine was hardened by it, for we removed as little of this as possible, and the very presence of this filling neutralized the nitric acid wherever it was present. Of course, since then she has had these teeth refilled; but in nearly every instance it has been a filling of phosphate of zinc covered either with gold or alloy.

Sometimes the effect of pregnancy will not be so much the rapid decay of the teeth, as an irritation causing tooth-ache. It may be only a low, growling uncomfortable feeling, which causes a grinding of the teeth for relief; or it may be a spasmodic beating, which comes and goes without premonition or apparent cause; or it may be that intolerable thump, thump, thump, which seems specially reserved for such a condition. In either case we must do our best to give relief. The patient may locate the trouble quite distant from its real seat; but it may be in some tooth, and we must find it, if it is there. Do we finally discover it in one badly decayed? Don't think for a moment of extracting it. However tender it may be, determine to reduce inflammation and fill. If really you can do nothing more, it can be filled with phosphate of zinc till its inflammation is overcome. "But suppose the nerve is exposed?" Still count yourself behind your fellows, if you cannot quiet the pain and save the tooth. If the tooth is ulcerating, and it is thought its extraction desirable, we should have no hesitancy in removing it. We have never yet seen evil resulting in such cases, though we have witnessed the baneful effects of persistently retaining an aching tooth.

Sometimes, in this class of cases, the toothache will be only sympathetic. Too much care cannot be used in discriminating. Soothing

lotions, slight scarifications of the gum, and thoroughly impressing the patient with the *fact* that it is sympathetic, will go far in giving relief.

There may be "a very uncomfortable sensation" in the teeth, if not a positive tooth-ache, which comes from an inflamed state of the gum and the muscles of the mouth. This is only irritation, and can usually be overcome by thoroughly brushing the teeth and frequently rinsing the mouth with cold water. If this "feverish" condition of the mouth is accompanied by "fetor of the breath," the frequent use of lemon juice is excellent. Don't be afraid of such people eating sour things. It will not hurt them nor their teeth. This irritation sometimes comes from irritating causes between the teeth, or tartar upon them, causes perhaps too slight to have given any disturbance under ordinary circumstances. But in all this class of cases, as in accouchements, it is as important to know "what not to do" as what to do. More injury sometimes comes from ignorant intermeddling than from leaving to nature what she can herself accomplish. We have known sound teeth extracted, one after another, to satisfy a whim of a patient in this condition, and generally without more than temporary relief.

FROM BECOMING SEEDY, GOOD LORD DELIVER US.

The Episcopal prayer book lacks one petition. It provides prayers for deliverance from many possible accidents, perils and extremities, but omits prayer for prevention from becoming seedy. It is a prayer that we have often uttered, though without permission of the prayer book.

As we have seen dentists approaching old age, become crochety, unmannerly and sharp-elbowed, we have inwardly prayed, "From becoming seedy, good Lord deliver us."

As we have seen them with tobacco juice streaming down the corners of their mouth and on their shirt bosom, dandruff upon their shoulders, dirt and grease from head to foot, with a general unkept and unwashed appearance, we have devoutly prayed, "From becoming seedy, good Lord deliver us."

When we hear dentists continually talking of what they *have* been, the eminence they *once* enjoyed and the associations they have *had*, and yet are now general "dead beats," we pray, "From becoming seedy, good Lord deliver us."

Growing old is no sin, but growing seedy is a terrible misfortune. We once knew of a moving mummy. He had been pickled for more than twenty years in whisky and tobacco juice. He was kept as a kind of anatomical curiosity. His friends told me he had once been a man. He had long since withered and gone to seed. He ought to have been

buried, but it was against the law to put him under the ground as long as he moved, so they were burdened with his repulsive presence. "From becoming seedy, good Lord deliver us."

Sometimes men go to seed before they are old. We saw a dentist in Indiana last summer who had gone to seed at fifty-five. They say he had been eminent, skilful and successful. He talked as though he was still an active force, but he had gone to seed, and had been shoved aside long ago. True, he still had an office, but it was only the relic of what it had been. He moved uncertainly about the office at times—that is, when not at the saloon—but those who once knew him, now know him no more forever. He had dental instruments and a dental chair, but they were nearly as bad as Rip Van Winkle's gun after he had been sleeping twenty years, and the rags of the two gentlemen were something alike. "From becoming seedy, good Lord deliver us."

When we see a dentist who has hugged a few pet ideas till they have gone to seed, and he has become gray in his endeavor to preserve them, while the world has moved on without him, we exclaim, "From becoming seedy, good Lord deliver us."

We like to see a grand old tree; but to be grand it must have green foliage and graceful boughs, and inviting fruit, not be dry and seared and sharp knotted.

When *we* grow old—if ever we do—we pray God to give us the grace of juiciness, so that we shall bear succulent, crisp, pleasant fruit. "From becoming seedy, good Lord deliver us."

ACQUIRING AND LOSING PRACTICE.

The rules which may govern the acquisition and the loss of practice are interesting alike to the young and the old practitioner. For the benefit of all allow us to give, with some remarks, those recorded by the great Dr. Rush:

THE HONORABLE METHODS OF ACQUIRING PRACTICE.

"1. *Great application to study.*"

As all the knowledge we possess came through hard study, so must all come that we ever expect to have. We must always be students. There can be no standing still. We must go onward or go backward.

"2. *Punctuality and Fidelity in complying with engagements.*"

To be ready to receive our patients and operate for them at the precise time appointed is of great importance.

"3. *Pleasant and acceptable manners in the habitual exercise of self-denial, as far as relates to temper, and in universal civility and politeness.*"

"*4. Sympathy with our patient.*"

In suffering, most persons deserve sympathy , and have a right to expect it from those to whom they apply for remedial aid. Want of this feeling will not be long endurable. Besides being an honorable way of acquiring practice, it is our duty.

"*5. A regard to decency and dress.*"

By this is not intended a lavish or foppish extravagance, but simple, neat, plain habliments which shall proclaim us gentlemen.

"*6. A respect for religion.*"

It may seem a strange thing, but it is true that even those who believe in no religion themselves, have more confidence in one that does than they can possibly have for one "that sits in the seat of the scorner."

THE DISHONORABLE METHODS OF ACQUIRING PRACTICE.

"*1. Opposing the principles and traducing the practice and character of brother practitioners.*"

"*2. Charging less than the fees either recognized or adopted by our professional brethren, for the sake of custom, when we recognize them as reasonable.*"

This rule debars no one from making that charitable deduction which special cases may require. It applies specially to such cases as when a patient calls for our services, stating that he has become dissatisfied and left his regular dentist because of the amount of his bill, and now desires to employ us. In all such cases it is our duty to inquire the rate of the bill and, if reasonable, to tell the applicant that no wrong has been done him and that we will be compelled to charge him at the very same rates.

ARTIFICIAL AND REPREHENSIBLE MEANS OF ACQUIRING PRACTICE.

"1. Making an ostentatious display of the fact that we have the patronage of a great or rich man, or of a fashionable lady, or of several powerful families."

"2. The use of great taciturnity with grave and knowing looks."

"3. The practice of eccentricity of manners and conduct."

"4. The display of great minuteness in inquiring into the symptoms (such as examining lips and teeth by means of powerful magnifying glasses), or affecting to have an understanding of a patient's case by the most superficial examination."

"5. Speaking in all companies of the number and rank of patients, and frequently of their diseases."

THE JUST CAUSES OF A LOSS OF PRACTICE.

"1. Ignorance."

"2. A fondness for pleasure more than for the Profession, discovered by frequenting saloons, theaters, horse-races, and other places of public amusement and dissipation."

"3. A careless or superficial examination of a case."

"4. A harsh or indelicate mode of behavior."

"5. Drunkenness, profanity and impiety."

"6. A want of firmness and decision of character."

CAUSES FOR THE LOSS OF PRACTICE WHICH MAY BE UNAVOIDABLE.

"1. Sickness of a dentist and necessary excursions from home."

"2. Unpopular opinions in politics and religion."

"3. Sending in accounts when due."

WHAT NONSENSE.

We clip the following from a dental journal. After this astonishing proof of the poisonous effects of vulcanized rubber who will dare to use it? Let every dentist forthwith close his office door against it.

VULCANITE.

"We continue to receive information from dentists in different parts of the country of the bad effects of vulcanite. Cases are related where a chronic diarrhœa of a serious character has been supposed to be induced by it. Also a case where acute inflammation and swelling of the glands were produced by smoking a pipe, the stem of which was made of this compound. The difficulty ceased when the stem was replaced by one made of another material."

On a par with the above is the following, we take from the illuminating pen of "Dr. S. A. Gerry, Hickory Corners, Michigan."

"Amalgam is poisonous to teeth, and is often detrimental to the whole system. Amalgam is a condemned practice, and its use for filling teeth is forbidden by every Dental College in Europe and America; and any dentist who uses it to fill good teeth renders himself liable to prosecution for mal-practice. It often produces mercurial sore mouth, causing the teeth to drop out. Every amalgam dentist is either a knave or a fool."

Thoughts from the Profession.

TEETH.—AN INTERESTING AND CONCISE DESCRIPTION.

BY GEORGE A. HENDRICKS, M.D.

[Curator of the Medical Museum of the University of Michigan.]

So many interesting facts are locked up within the tooth's hard casement, and so long and obstinately has it resisted the hammer and saw of the investigator, that it has long become an object of special study to the scientist. Give a tooth to a naturalist, and he, like the great Agassiz who, when given a scale, drew a picture of the fish from which it was taken, can draw a picture of the animal that produced the tooth, even though the species be extinct a thousand years. The naturalist can tell if the animal fed on grass; if he couchingly awaited the approach of a weaker animal upon which to feast; if it climbed the tree and gathered the nuts, or tunneled the ground to make its meal upon its juicy roots. Thus to the physiologist, on account of its intimate relation to the food and life of the animal, the tooth is of great interest; its many forms serve as a guide to the naturalist; from their convenience of position they can be easily examined in dead or living animals practically important as zoological features; their mineral composition renders them more durable than the other tissues of the body, which enables the palæontologist to determine the nature and habits of extinct species. Indeed, in no structure, is the law of *harmony of organs*, illustrated in a more striking manner than in the study of the teeth. Even the internal structure of teeth is so peculiar in each group of animals, that it is possible to determine with precision the general structure of an animal merely by investigating the *smallest fragment* of a tooth under the microscope.

WHAT ARE TEETH?

They are small hard bodies fixed into the bones or lining membrane of the mouth and throat, and perform the various offices in connection with the prehension and comminution of food. As such they are peculiar to *backboned* animals. They are not, as is generally supposed, developed from the bone, in which they are so firmly held, but they grow from the mucous membrane that lines the mouth. This membrane was, at one time in the youth of the animal, a part of the external skin with which it is now blended at the lips. If the growth of a hatching fish or the embryo of any animal be watched, it will be found that at one period of its existence, when its mouth is being developed, it has a distinct upper lip, but that the skin turns in over its under

jaw. By the time the cavity of the mouth is truly formed, this membrane has become somewhat modified in appearance, but as its structure remains nearly the same as the external tegument, a growth from either has about the same primary plan of development as a hair. A process grows down from one of the layers, (malpighian) of the membrane, into a depression which at the same time is produced for it in the tissue underneath. A small elevation (papilla) soon rises from the bottom of this depression, into the "down-growth." This papilla becomes the germ from which the growing structure will be developed, and the "down-growth" from the malpighian layer is changed to a simple sac or follicle inclosing the germ; *in the one case the contents of this sac becomes a hair and in the other a tooth, according to situation.*

In the case of the young fish the skin as it recedes into the mouth carries scale or spine follicles with it. From these follicles are developed modified spines. In the shark they become so very much larger than those on the outside that their identity is lost. Many fishes, however, have spines covering their bodies that in size and form very closely resemble the teeth of the shark. Thus, whether we study the development of the parts, or make comparison between adult forms, it is seen that the teeth of the shark correspond in mode of development to the teeth of other fishes, and these in turn to those of higher animals, including man. Having shown that the teeth of fishes are highly developed spines, and that all teeth bear similar relation to the skin, it is easily seen why they are classed with the hair, nails, etc., as "dermal appendages;" and why they are regarded as perfectly distinct from the internal bony skeleton. Since all teeth are developed from the mucous membrane of the mouth, it must not be inferred that they have similar connections with the hard parts, or that they are at all attached to the jaws. In many fishes, and particularly in the sharks, they remain in the membrane, having no attachment to the bone; in others they fit more or less loosely into cavities of the jaw; while in some animals they become firmly united (anchylosed) to the bone. Teeth are not only attached to the jaws but they are found on the tongue, in the throat, and on plates of bone forming the roof of the mouth. This profuseness is confined to the fishes; on reptiles they are less widely distributed; while in mammals they are limited to the maxillary bones. In the lower orders teeth are very numerous and similar in form, in mammals they are fewer in number and adapted in form to various uses, as prehension and comminution of food, self-defense and aggressive warfare, etc.

As the teeth develop, various forms of lime are deposited in the soft growth previously described. The hardening of these pre-existing cells always proceeds from without inward and may continue until the

whole tooth is completely solidified. In most cases, as in man, it does not advance to this condition but leaves a soft mass, which is the "pulp" or "sensitive part" of the tooth, within a hard shell or dentine. When this pulp becomes almost completely enclosed by dentine, the tooth ceases to grow, as is the case with human teeth and all others that have roots. But this vascular mass may be continually reproduced at the base of the tooth, as in the alligator, and as constantly converted into new dentine; in this case the tooth is of perpetual growth, often being shed in layers as new layers underneath are being formed.

If a longitudinal section be taken of a human incisor, three distinct hard substances will be exposed: The enamel, the white and extremely hard covering for the exposed portion or *crown*; a relatively soft yellowish substance deposited on the *fang or root*, called "*cementum*," while the great mass of the tooth is seen to be made up of a bone-like material, the "*dentine*," which gives its characteristic form. The cavity within the dentine contains the "pulp."

The above arrangement is true of all the human teeth and the "nippers" of most mammalia. But these hard parts do not always bear the same relation to one another. Examine the grinding surface of a horse's molar and it will be found to be arranged in lamina, more or less perpendicular to the surface. The sharp ridges sometimes seen on enamel, with intervening grooves are formed by the wearing away of the dentine and cementum. These plicated layers vary with the different families of ruminants. In one they run parallel with the long axis of the tooth, in another they are transverse.

In the order of gnawers or rodents the incisiors have quite a different arrangement. The tooth is made up of a body of dentine with a plate of enamel laid on its front or anterior surface. The plate consists of several layers of varying density, the hardest being the most anterior. These teeth have always an oblique cutting surface, like a chisel, sloped backward from their short anterior margin.

HOW MANY.

Some hints have been made, necessarily, regarding the number of teeth. In fishes, where there is offered a most striking series of varieties, they generally range from o to 8, though in a few cases they are very numerous. The sturgeon, whose mouth is nothing more than a protrusible sucker, is without teeth; the little sea-horse, common in aquarias, is also edentulous; the ray has its mouth filled with plates or prisms, having a tessellated arrangement; while the the teeth which fill the mouth and throat of the pike are numberless. These are extremes between which there is every grade.

Among the reptiles the whole order chelonia are without teeth; toads are just as destitute; while frogs have their upper jaw supplied,

their lower going without; salamanders and some lizards have their jaws filled, and throats also; in crocodiles and most serpents they are limited in number and confined to the jaw bones.

There are a few genera and species among mammals that are edentata. All true ant-eaters are strictly devoid of teeth; whales, prior to birth, have on the margin of both jaws a series of round rudimentary teeth, which are soon shed, being succeeded by whalebone plates,—the adult whale has no teeth; the elephant never has more than one whole tooth, or parts of two, for each side of the jaws, his front teeth are developed into enormous tusks; true ruminants have no incisors in their upper jaw, their entire number is thirty-two. The same number characterizes man and the apes, and is the average one for the class mammalia; but one hundred and ninety must be counted to number the teeth of the dolphin, the greatest number found in any mammal.

HEMORRHAGE AFTER EXTRACTION.

PIERRE, D. T., Jan. 18, 1883.

EDITOR ITEMS:—I inclose subscription for ITEMS OF INTEREST for 1883. I hope the ITEMS will receive the support it merits, for I know of no other paper or dental journal that gives so much value for the investment.

I have noticed several items concerning continued hemorrhage after extracting teeth. It has been my habit for several years, when extracting to have the patient rinse the mouth frequently with salt and water, warm. If after that there is hemorrhage, I find the place from whence it comes, and saturate a piece of cotton with a solution of equal parts Persulphate of Iron, and Sodium Chloride, and pack it into the socket, and cover with a roll of cotton cloth and direct the patient to hold it there by keeping the mouth closed. I have never seen it fail to arrest hemorrhage in a few minutes.

Respectfully, W. B. STEERE.
U. S. Examining Surgeon.

DR. JAMES TRUMAN says:—I do not regard the administration of combinations of inorganic materials to be of any value in the nutrition of tooth-tissue. To make them of value they must first be presented in the form given us by lower organisms, and from these natural selections will follow suitable to each organ. Observations in lime-water districts lead positively to the conclusion that the water thus impregnated is utterly valueless, if, indeed, it does not have a decidedly injurious influence.

DR. W. C. BARRETT ON OUR JOURNALS.

Practically, the depots openly combine against the dentists, and not a journal raises the voice of warning. [Dr. Barrett, is this true of the ITEMS OF INTEREST?—ED.] But in the main our periodicals are unshackled, as, in the nature of things, they well can be.

What is the outlook for the future? That depends upon the progress of the profession. If dentists are thinking, reflecting men, our muses will show it. If the profession is everywhere given up to the "auri sacra fames"—the cursed thirst for gold—we shall soon have cause to hang our heads for our humanities, because the stream cannot rise higher than its source, and professional literature will remain at the level of the body with which it is connected. It must be remembered that every profession makes its own literature. Editors write few of the articles which they publish. Look through the list of our journals, and see what proportion is conducted by practical, working dentists. The busy bees of the profession have little time for composing homilies upon the flowers which they are engaged in rifling of their honey. But if practical dentists neglect the journals altogether, we shall soon see them what some of the more prominent foreign dental periodicals are to-day—filled up with accounts of the success of the dentists in crowding themselves into medicine, and exhibiting their inability to stand alone; with long narratives of legal squabbles; the platitudes of mutual admiration societies; of meetings where a paragraph suffices to record all the scientific discussions, while pages are devoted to an account of the dinner—ten lines dedicated to the brain, ten pages to the stomach. I like good eating and drinking, but my God is *not* my belly, however much appearances may go against me.

The literature of dentistry can only reflect the status of the profession. If dentists are wholly given up to greed and money-making, the journals will be devoted to advertising. Hah! I almost wish I had not said that, for it reminds me that I counted the pages of the last dental journal received before leaving home, and—let me say it in a whisper—there was more space devoted to advertising than to dental literature. It was a depot journal, however. I will say for the credit of the only dental journal which New England possesses, that I did the same for the September number, and found the reading matter was more than four times the advertisements; so I conclude that is not mainly published as an advertising sheet. [Friend Barrett, do you see any evidence that the ITEMS OF INTEREST is trammeled by the interests of any depot?—and is there any other journal with more reading matter in proportion to advertisements?—ED.] Well, advertisements are legitimate enough, but I don't like to see our very altars inscribed—"Try Dr. Quack's new patent, improved, non-shrinkable, Stannous

gold, New Departure alloy ; in proportion as teeth need saving, amalgam is the only proper material to save them, and mine is the single, solitary, genuine, Simon-pure, Old Original Jacob Townsend, take-no-other-only-four-dollars-an-ounce article." Such literature as that, whether in books or journals, private conversation or dental society discussions, is scarcely creditable to the profession, and those who last summer attended the International Medical Congress in London, had it frequently thrown in their teeth.

SAVE THE PULPS.

"Rex," Lincoln, Nebraska, says in *Cosmos :* " Let me say that, had all dentists microscopical eyes, and were all exposed pulps accessibly situated for their scrutiny, and did all practitioners thoroughly understand the various pathological conditions of both patient and pulp, then there might be some excuse in certain cases for the use of arsenious acid or the extirpating broach. But, with Dr. Wm. H. Atkinson and many others, I long ago banished arsenious acid from my dental materia medica, and have found that, with the proper conservative treatment, those pulps which *cannot be saved* are by that same treatment wafted to their demise " on downy beds of ease."

No writer, laying down a general rule of practice, can always stop to mention the exceptions to that rule which might arise in practice. Only a few days since I had occasion to extirpate a living, healthy pulp, where by accident the crown of a cuspid tooth had been broken off, and it was necessary to save the root for the attachment of an artificial crown ; and there might be cases of pulp-exposure from caries, where the pathological symptoms were most unfavorable, and the patient living or about to go beyond the care of a dentist, when extirpation would be justifiable, that the tooth might be filled and the case dismissed. But, as a rule, I believe the conservative treatment to be the proper one ; for in some cases, where suppuration had set in and every symptom was most unfavorable, I have restored pulps to a healthy condition, capped them, and filled the teeth, and they are to-day living members doing good service. In looking over my register I find one such case of over five years' standing, another of about three, and others of shorter periods. Therefore, I reiterate that *the proper treatment of exposed living pulps is the conservative one.*

Dr. H. S. Chase of St. Louis, is in favor of varnishing the cavities of teeth before filling them, with sandarach varnish. He thinks by thus filling up the open tubes of the dentine there is less liability for chemical action from leaky plugs.

HOMŒOPATHIC TREATMENT IN DENTISTRY.

BY DR. M. A. WEBB, MARENGO, ILLINOIS.

Periodontitis is induced in many ways. A blow upon the tooth, irritation of foreign substances, excess of filling material, etc.

The symptoms of the disease are soreness of the tooth upon pressure, slight elongation, inflammation and soreness of surrounding gum tissue, with continual pain more or less severe.

If this often very severe, prolonged local lesion be intelligently combatted with homœopathic remedies, its career is short, and relief certain. The treatment which I would recommend is the local application of equal parts of aconite and alcohol and internal treatment of aconite and belladonna, using the third attenuation of each to moisten the regular homœopathic globules, giving six globules of each alternately every hour until relieved. It will certainly have an immediate and decided effect.

There has been little said at our society meetings, and little (almost nothing) published in our periodicals about the homœopathic treatment of dental diseases, and yet I believe there are hundreds of dentists who are homœopathists. Why is this? Every one who has investigated the matter of this form of treatment cannot but be convinced that the law of cure as practiced by the homœopathists is as immutable and far-reaching as any other natural law. "*Similia similibus curantur*," or "like cures like," is founded on fact.

If those dentists who use this form of treatment would give their successes to the profession through the journals, it might be the means of enlightening others.

Homœopathic dentists should let their light shine, taking for granted that our journals will allow articles relating to the homœopathic treatment of disease.

There is no doubt in my mind but that hundreds of teeth are annually extracted by ignorant practitioners that by proper treatment could be saved. For instance, a patient calls at the office having toothache. The dentist makes the examination, finds the tooth sore, gums red and painful, and decides that the tooth is about to ulcerate and must be extracted, when, perhaps, the truth of the matter is, the tooth has received some injury, either from an operation or from foreign substance, and a few days rest and treatment would restore it to its normal condition. We should not be too anxious to extract the teeth, and the more we become enlightened, and the more we love our calling, the more teeth we will save, and the greater blessing we will be to humanity.

FRATERNITY.

BY DR. H. E. VAN HORNE, SYRACUSE, N. Y.

Evidently there is something wrong either in the nature of dentists or in their education. What is it that for appearances prompts them to *assume* a brotherly feeling towards each other when in professional conclave, but is dismissed as soon as the society is adjourned? From that time until the next meeting a tendency to acidity exists in the breasts of the majority of the profession. Again, by a great effort, the jealousy is seemingly banished for a few days. No doubt this spasmodic courtesy is due to the influence of the gentlemanly tailor who made each brother's (?) genteel suit, for there exists an affinity between cloth and cloth as between certain minds.

We have had a hundred years of this nonsense; now for the sake of peace and prosperity let us be true to ourselves, and cease stabbing each other with cowardly stilettoes—thoughts prompted by the "green-eyed monster." All other professional men are true to themselves and their own interests as a whole. Then, of course, naturally follows their own individual good as a result.

Let us be kind to each other. We are toiling along the same road, why make the way bitter by strife? The mortality rate is comparatively low among dentists, because they have regular hours, are housed, and generally not overworked. All this tends to long life. Yet to gain a competency for the decline of life is scarcely to be thought of.

Then why in the name of common sense have we delayed so long the formation of mutual benefit societies in every State? We appear to be a lot of fossils, to be looked upon by other professions in the nineteenth century as curiosities.

We want fraternal societies, wherein can be distributed financial aid in time of sickness and want, when age has come, and the eye is dimmed, when the hand will no more act skilfully, when all earthly things fade, and our families need enough to keep them from want, and our name from disrespect. Let us hear from others, and above all, *act*.

"BREWER," of San Francisco, says in the *Missouri Dental Journal* that lac sulphur is good in the treatment of Riggs' disease—congestion and consequent denudation of the gum. "I have," he says, "for the past twelve or fifteen months, received immense benefit from it, and brought up denudation out of the root in dozens of cases. Carry down to the process plenty of it, using a delicate feather. It is splendid and carries all the aromatic sulphuric acid you want, without corrosion." Of course, all sanguinary calculus must first be removed with delicate instruments, "thus leaving a healthy surface for repair."

A TWO THOUSAND DOLLAR TOOTH.

A man in a large active business, in New York, said in our hearing: "The worst oversight of my younger days was that somebody did not instruct me to take care of my teeth. At fifty years of age I have but eight natural teeth left, and I could well afford to pay even $2,000 apiece to get back half a dozen or more that I needlessly lost." In explanation he put it in this way: "Artificial teeth are at best a very poor substitute. I am in a large business that needs a good deal of strength of body and mind. All strength comes from good food well digested. But perfect digestion only takes place when food is thoroughly masticated (chewed) and mixed with the saliva, and good, firm, natural teeth are essential for this. So, if I had better teeth I could do a great deal more of profitable business, and earn additional money enough to pay a great price for several of them."

This is worth thinking of by the young. Here are some good rules: 1st. Never crack nuts with the teeth, or bite very hard substances; it breaks or cracks the enamel and hastens decay. 2d. Always brush the teeth before going to bed, if not in the morning also, and use a wooden or quill tooth-pick (not pins or other metal,) to remove any food from between the teeth, if left there over night it ferments and injures the teeth. Use only a moderately stiff tooth-brush, a very stiff one injures the gums, and promotes decay. Do not use any of the "boughten" tooth-powders, unless it be finely powdered orris root. The most active tooth-powders, which whiten the teeth quickly, contain injurious acids or alkalies. Charcoal, however fine, is not good; it has the "grit" and wear of diamond dust. 4th. If the slightest decay begins on any tooth have a reliable, skilful dentist plug it firmly at once. It will be one of the best possible investments of a small sum for the future.—*American Agriculturist.*

DR. W. C. BARRETT truly says:—"The only way to sustain a creditable literature is for every intelligent dentist to contribute his mite. There is not a practitioner worthy the name, who has not stored in his memory some aphorism that others need to be reminded of; whose experience, in some instance peculiar to himself and unique, should not illumine and instruct his brethren. There are a few gifted men who might, perhaps, contribute volumes. Not one of us but could enrich our literature with a paragraph, at least. A thought which may occur to us, if properly recorded, if garnered in the grand storehouse of letters, may feed some hungry soul, and stimulate a fainting mind to renewed exertion. Neglected, it is as the idle wind which fanned the brow of yesterday, and to-day is not. Brethren, don't forget the dental journals."

SHALL WE HEED THE GOOD OLD MAN?

The venerable Dr. George Watt says:—"The younger brethren can easily take care of the profession if they take care of themselves. If they follow the good advice given to King Lemuel by his mother, all will be well with our profession and its members and patrons. 'Give not thy strength unto women, nor thy ways to that which destroyeth kings. It is not for kings, O Lemuel! it is not for kings to drink wine, nor for princes strong drink, lest they drink and forget the law, and prevert the judgment.'

"We are sorry to say that a few of the members at the late meeting are not following this advice, and are therefore in danger. And, my dear young friend, you are one of them. You are in danger. Halt! 'bout face! double-quick! march.

"Since the meeting last year, the reaper, with his sickle keen, has harvested some of our members. We shall not all meet next year. Of some of us the stereotyped phrase, 'Whereas, in the mysterious providence of our Father above has been taken from time to eternity,' will be placed upon the record. Shall we not do with our might the work set before us! Or if we are spared till the next meeting, the time, at all events, must be short. Let it be profitably used."

THE PERIOSTEUM.

How loose the teeth in a dry skeleton are. By the least movement they are made to rattle as though their bony sockets had dried away from them, or else that the teeth had shrunk from their walls; neither is true. In life this space was filled with a vascular, elastic, tough membrane called the periosteum. Its use is important. It allows a continual, imperceptible motion to the teeth—they are never quite at rest. What that has life is at rest? It is through the yielding nature of this periosteum that we are able to so quickly move teeth apart a little for the purpose of filling proximal cavities. It is the source of nourishment to the tooth from without, something as the pulp is from within. Sometimes a tooth is all at once longer and looser than the rest. This is caused by inflammation of this membrane. Some teach that there are two such membranes, one facing the tooth and the other the alveolar socket, thus making a double membrane between the two bony walls. This is evidently a mistake. All modern investigations, so far as we are informed, prove it to be one continuous tissue, with its fibers running transversely between the socket and the tooth, these minute fibers actually entering the cementum of the tooth.

THE ACID THEORY.

At the last meeting of the Mississippi Valley Dental Association, Dr. J. Taft said: "The principles upon which the treatment of decay depend are being modified all the while. There is a growing disposition to combat decay by general systemic treatment, rather than by a sole reliance upon filling, as formerly. The operation of filling is now a great deal more efficient in its details and results than it was some years ago; yet it should not be our only treatment.

"The general inquiry now is, What can I do to arrest decay of the teeth? "This is the gist of a large part of the discussions in societies at the present time. By general treatment, the aim is to prevent fermentation, decomposition of unstable bodies and the vitiation of the secretions of the mouth. The operation of decaying agents can be readily understood and expressed in definite terms. All decay is caused by newly formed agents. Acids introduced in the mouth in food, drink or otherwise, do not produce true decay; they merely cause a corrosion that is in no sense allied to true dental caries. The immediate or definite causes of dental caries are right on the spot and act immediately. The saliva contains alkaline materials, but there are other sources of origin. The expired breath contains a greater or lesser amount of ammonia, as the case may be. The fluids of the mouth, by absorbing this ammoniacal gas, of course, become alkaline in proportion to the amount absorbed. The test applied to the breath itself will demonstrate the presence of ammonia. When, then, this ammonia is oxidized in the mouth, nitric acid in its nascent state is developed, ready to act immediately. The irritation of the mucous membrane at the margin of the gum will cause a vitiated and acidulated secretion in direct contact with the neck of the tooth. The tooth at this point, not being supplied with an impervious protecting enamel, at once succumbs to the rapacity of the acid. The decay may be more or less vigorous, and either one or both of the animal and mineral constituents may be destroyed and washed away. If the irritation at the margin of the gum be due to deposits of foreign bodies, their removal is indicated. It is useless to cauterize the margins of the gum, or the sensitive dentine underlying. Much more is to be gained by treating constitutionally, than mere topical measures. Simply filling the part destroyed only palliates but does not radically alter the condition of things, as a few month's time shows softening and a recurrence of the decay about the filling.

Acids occurring in the mouth are formed just exactly as acids are formed anywhere else. Chemical elements combine in definite proportions, and where one body undergoes decomposition, new combinations immediately succeed. The decomposition of a nitrogenous

substance liberates ammonia, and it is the union of this with oxygen that produces nitric acid. Nobody can taste it, but that is no evidence that it is not there. All the elements are present, and under favorable circumstances, their affinities will assert themselves, anything else to the contrary notwithstanding. The affinity of oxygen for any other body will always result in a union. The acid causing decay is in the nascent state, and not as having existed for some time and then introduced into the mouth.

MODELS AND THEIR PREPARATIONS.

BY DR. M. A. WEBB, MARENGO, ILL.

EDITOR ITEMS :—In the July number of the ITEMS Dr. Best, of London, is quoted as to the preparation of models of the mouth in such a way as to dispense with air chambers.

This idea is not new, with me at least; I have treated my models similarly by scraping the labial surface of the gums, avoiding, of course, all muscles, and also along the lingual margin, then across the distal or palatal margin, smoothly finishing by rubbing with coarse woollen cloth or fine sand paper.

All the difference there is between my practice and his is that I also treat the lower gum model in the same way with wonderful success. I have by this process fitted lower plates so perfectly on lower arches almost devoid of ridge that they have answered for mastication.

In lower models I scrape off the lingual and labial surfaces of the gums, and that very thoroughly. Of course, I am guided by a previous examination of the mouth, avoiding hard portions. If the gum is fleshy near the junction of the cheeks and gum, then the model will bear quite an extent of dressing. This is the only true way of preparing models for artificial work. You will have no use for the air chamber; this is only a poor excuse for a badly-fitting plate. I would say *try it* and you will never use any other method.

[For years our practice was similar—scraping most where the muscle was thickest and none where it was bony. Also, with the triangular point of an excavator, cut narrow grooves over the surface of the model, thus dividing it into sections. These grooves would, of course, represent narrow ridges in the plate.

In very flat mouths it is another good idea to make prominent plumpers over each side of the outer edge, *with the upper portion scooped out* to receive the muscles connected with the cheek. The under plate is also built out on the inside to receive the flabby muscles under the tongue. Great care, however, is to be taken not to infringe upon the floor of the mouth, or to interfere with the muscles brought into play in masticating, talking etc.—ED.]

DR. W. E. DRISCOLL, OF BEDFORD, IND., ON AMALGAM.

While I have never followed Prof. Flagg and his co-new-departurists into their extremes in reference to plastic fillings for teeth, I must say I am as far from agreeing with those like Dr. Keith, as set forth in his article published in the *Ohio Journal* for July. He says: "Hundreds of women suffer untold agonies from nervous spasms from the effects of silver filled teeth." Then he proceeds to make them "told" agonies, by saying they are "neuralgias, headaches, catarrh, drooling, dry-mouth, throat disease, and *general rottenness*." Very well; if he knows of such cases, he has discharged part of a plain duty to the profession and humanity, but not all. Assertions may have incontrovertible facts to back them, or investigation may show the narrator to have been badly misled. Let Dr. Keith give names, dates, locations, etc., so that all who would learn, can do so for themselves, as to whether there were not other and *real* causes for these effects which he charges to amalgam. To talk about the effects or results that may be produced out of the mouth by certain strong acids in connection with silver, zinc, etc., proves nothing as to what actually occurs in the mouth, with its modifying fluids, conditions, etc. Amalgam for filling teeth is unsatisfactory enough for reasons upon which there is little controversy, if people would pay for gold; or "if" people would apply for filling early enough in the progress of decay; but as long as these two reasons for its use continue, it will be used by almost every dentist in the world, unless Dr. Keith could substantiate his charges as already enumerated.—*Ohio State Journal of Dental Science.*

TRANSPLANTATION OF MUSCLE ON MAN.

Dr. Helferich, of Munich, after the removal of a large fibro-sarcoma from the biceps muscle of a woman, aged thirty-six, refilled the gap left vacant with a freshly cut piece of muscle taken from a dog; fastening the same with six lower and thirty upper catgut ligatures. A cure followed an antiseptic treatment. The patient can now readily flex and extend the arm. An electrical examination instituted by Ziemssen did not show any abnormality, and it appears therefore that the transplanted muscle has retained its vital functions.—*Berliner Kline Wochenschrift.*

THE comparative safety of anæsthetics is given by Prof. E. Andrews, of Rush Medical College, as follows:

Chloroform,	1 death in 2,723 admin's.
Mixed chloroform and ether,	1 " " 5,588 "
Bi-chloride of Methylene,	1 " " 7,000 "
Sulphuric ether,	1 " " 23,204 "
Nitrous Oxide,	No death in 75,000 "

"WHAT IS NEURALGIA."

Under this head Dr. P. Shaw, of Manchester, England, reports a case of fatal blood-poisoning of much interest. When will physicians be modest enough to know they can learn something from dentists?

The patient, an eminent merchant, had been confined to his house for more than a month, and for some time even to his bed, with what had been pronounced a severe attack of neuralgia, and for which he was then under treatment. He described his pains as mostly confined to one side of the face, but often shooting through the entire face, and frequently extending into the head, neck, back, and even more distant regions. The dentist inquired into the condition of the teeth, and was told, what proved to be true (?) on examination, that they were not at all decayed or sore, but that a little matter had been observed at the edges of the gum. He could not say, at the time, he had noticed any discharge of pus from, or had perceived any fetid smell in his nose; but afterwards remembered that he had. There was no very perceptible swelling of the face, yet the patient pointed to a sore place just beneath the eye, and close examination showed it was a little puffed on the side where the pain was mostly felt. He had become very weak, and his whole system was generally deranged. Every intelligent dentist who has read thus far, will have concluded—as did the dentist consulted, in less than five minutes' time—that this patient was suffering from a severe attack of inflammation in the lining membrane of the antrum. When the regular medical attendant heard this opinion, he at once concurred in it, and also agreed to the desirability of the course of treatment suggested by the dentist for the discharge of the accumulated pus in the antrum. But before he would consent to any operation, he insisted on having the opinion of a certain eminent surgeon. Two days were thus allowed to pass before this gentleman could be got in attendance, the patient's sufferings going on, and the chances of his recovery being greatly reduced in the meanwhile. In time, however, the physician, surgeon and dentist met, when the strong advice of the latter was acted upon, and a molar tooth removed, with the understanding that if this did not procure sufficient discharge of pus from the antrum, an opening was to be made by means of the dental engine. The tooth was removed with very little exertion, and a considerable quantity of matter discharged, but it was evident that little of it came from the antrum. The dentist, in due course of time, took his leave, quite expecting to be again called as soon as the patient had recovered somewhat from the first, to perform the second operation, which all had so far agreed with him to be necessary for the removal of the primary cause of the illness. But, to his great surprise, he was not again consulted, beyond being asked, a few days after the extraction, to determine a dispute which had arisen between a fourth authority—a

consulting physician who had been called in—and the attending physician, as to the character of several pieces of necrosed alveolus which the patient had removed with his fingers, the eminent consulting physician having declared it was a part of the tooth which the dentist must have broken in the extraction! As the dentist was not again consulted, he only knows what took place informally, and not from his own observations ; but the information is sufficiently accurate for us to come to a definite conclusion.

As the patient got gradually worse, it was given out, as the result of the combined wisdom of his medical advisers—minus the dentist—that he was suffering from a *complication of disorders*, such as neuralgia, sciatica, gout in the feet, Bright's disease, etc., as if each of these were idiopathic, accompanied by intermittent febrile symptoms. In about eight or ten days after the removal of the tooth, he had a severe rigor, which was repeated at irregular intervals ; and in just fourteen days after the operation, he died. If the dentist has had no difficulty in determining the exciting cause of this patient's disorder, neither will the thoughtful physician be at a loss to understand from what he died. Never did symptoms point more clearly to a case of pyæmia. The pent-up pus which had been allowed to accumulate in the antrum for more than a month before the true cause of his symptoms was discovered by his dentist, had, in all probability, wrought sufficient mischief to render the patient's recovery doubtful ; the more especially as the alveolus was found to be so much necrosed as to come away in large pieces ; and albuminuria had already developed. Yet, if the antrum had been opened, as was advised, and the matter removed, and an antiseptic treatment adopted, there was still a fair chance of recovery, as the patient lived two weeks after the removal of the tooth ; and while there were febrile symptoms, there was no rigor for some time ; whereas, death from blood-poisoning, results, as a rule, in from four to ten days. The possibility of recovery was also heightened from the fact that the patient had a good constitution and enjoyed excellent health. Yet so prepossessed were the minds of those who were responsible for this life, that they were apparently not able to make out a correct diagnosis, even after the key to the situation had been placed in their hands by the dentist, and the patient was left to linger on in pain, and be finally lost to all his usefulness, except that of allowing me to point out the error which led to such a catastrophe.

It is not pleasant to look back on a case like this, and nothing but a strong sense of duty, and the conclusion to which it unmistakably points, could induce me to do so. Is it not high time that dentists took this "facial neuralgia" theory in hand and exposed its errors, and, as we have seen, sometimes fatal consequences? It is not diagnosis, but pure charlatanism, to tell a patient who consults a medical

man for the relief of a facial pain, that he has a "nerve-pain." He knew that quite well enough, and what he wants is relief. But it is not proceeding toward this desirable end to assume that a pain cannot better be defined than by the use of a term the patient does not, as a rule, understand; or if he does, concludes it is one of those general terms, which has, by common consent, become crystalized into a definite meaning, which is well understood by those who use it; that his symptoms are his disease; and by the confident manner in which he is thus assured, lead him to believe that, even if he does not understand the meaning of neuralgia, the doctor knows all about his case. It is a common occurance to find patients treated for weeks, and even months, for neuralgia, while any intelligent dentist would, from the patient's description of the symptoms alone, at once say they arose from either odontitis or periodontitis; or, failing these, inflammation of the lining membrane of the antrum, and this apparently without a suspicion on the part of the medical attendant that the pain had any such origin. Even when alveolar abscess has caused the face to swell, I have known men, justly regarded as eminent physicians, to treat the patient for erysipelas. And, also, when the pus had been induced to approach the surface by means of powerful irritants, to lance the face in order that it might discharge in that direction, and then declare it a case of scrofula. There can be nothing without a cause; yet, so-called facial neuralgia is regularly treated as if it arose without any definite cause, or from some general or remote cause, which was quite too obscure for anything like accurate diagnoses, while in nine cases out of ten the origin of the pain so described stares one in the face the moment the mouth of the patient is examined; and almost invariably is only obscure to inexperienced or superficial observation. So true is this, that to astute dentists no meaning will be attached to such a term as facial neuralgia.

Such cases as are here named might be repeated by the score by any observant dentist. Yet we allow them to go on, and the general practioner to assume superior knowledge, where we should always teach.

EDITORIAL REMARKS.

A somewhat similar case was related to me by a gentleman as occurring in the neighborhood of my own dental practice, a few years since. Ulceration (not an abscess) at the end of the root of a tooth had bored a cavity into the antrum. While there was a free discharge through the cavity in the tooth there were no alarming symptoms; but an ignorant traveling dentist had recently filled the tooth with amalgam. It had taken so much that, as he took his pay, he casually remarked, he thought he must have "filled the bottomless pit." The irritation caused by his having thrust so much of the amalgam through into the

antrum, and the speedy accumulation there of pent up matter, produced blood-poisoning, and the patient died. Physicians were the only attendants, and they had no apprehension of the true cause or character of the trouble till after his death.

Three practical reflections seem pertinent:

1. That these mountebanks, calling themselves dentists, should be shunned.

2. That the symptoms of this case were so clear no intelligent physician should have mistaken them, or been ignorant of the proper treatment.

3. That in all these disorders of the face, mouth and teeth, the patient should be referred to an intelligent dentist, just as readily as a case of general surgery should be sent by a dentist to the physician. If physicians attempt such cases as the above, they should be modest enough to assume their inferiority, or at least that they are but the equals of dentists and always bring dentists into their counsels. In this case, the friend above referred to, came to me the day before the man died, saying: "Dr. Welch, Mr. Harris has been suffering for some time with 'facial neuralgia,' and the two doctors in attendance say unless he is better to-morrow they are going to send for you." After hearing a recital of the case, I said: "Why have they not sent for me before? Any intelligent dentist could have relieved the man in three minutes! now it is too late; he will die." This assumption of superior knowledge in such cases by physicians over dentists is absurd.

NO SALIVATION FROM AMALGAM FILLINGS.

BY HENRY S. CHASE, M.D., D.D.S., ST. LOUIS.

I have practiced dentistry thirty-nine years. I never saw a case of salivation produced by amalgam fillings.

For the last eight years I have used amalgams constantly, amounting to 800 amalgam fillings per year; for the *average* of those eight years. I have mixed the amalgam in the palm of my left hand for more than nine-tenths of that time. I have never had any symptom of the pathological effects of mercury, either local or general. On the contrary, I have had better health than for ten years previous, and the color of my face has changed from paleness to a healthy, ruddy glow, and that, too, without the help of "beer, wines, or spirits."

Scientific.

HUMAN PHYSIOLOGY.

BY L. ASHLEY FAUGHT, D.D.S.

Formerly Lecturer on Physiology in the Philadelphia Dental College.

(CONTINUED FROM PAGE 46.)

Water is the most important liquid aliment. Its chief value in the system is the solvent power which it exerts over other substances.

Alcohol ranks second, and is contained in all fermented and distilled liquors. As a beverage it acts as a heavy stimulant, and when carefully used may accomplish much good. Porter and ale are at times highly nutritious articles of food. Alcohol belongs to the non-nitrogenized group. The effect of this aliment upon the nervous system is to stimulate the cerebral centres by dilating their arteries, and so admitting more blood; then excitement supervenes with impaired muscular co-ordination, and finally coma. This action of alcohol is so well proven that there can exist no doubt of the fact that the substance lessens the capacity for active muscular exertion. It is well, therefore, to advise all who are about to undergo severe bodily fatigue to reserve all stimulants until their day's work is over, when it may prove of some service. Any recommendation of alcohol as an aid to the system to bear extreme cold is based upon error, for its effect is to dilate the cutaneous blood vessels, thus allowing blood to be removed from the heat-producing centres in larger quantity, and become cooled rapidly by being spread out in a vast sheet by superficial circulation. Moreover, it leaves the system weaker in power to resist cold.

Wines are generally divided into three kinds—light, sweet, and dry. A light wine is one which contains alcohol in very small proportion. A sweet wine is one, in which during the process of fermentation all the acid has been combined with the glucose, but still leaving an excess of the sugar. A dry wine is one in which, in the process of fermentation, all the acid and all the glucose have been used and neutralized each other perfectly.

Coffee and tea are light stimulants. Their action depends upon constituents known as caffeine and theine. Coffee has the power to produce wakefulness. It has been ascertained to be the best article to give to an army on the march, as it wonderfully enables man to endure fatigue and exposure.

Chocolate is an important aliment, though not in such general use

as coffee and tea. The market form is produced by grinding with sugar the nut of the cocoa tree. It possesses many of the properties of coffee and tea, and seems to have a specific influence in greatly increasing the flow of milk in nursing women.

Condiments and flavoring articles are of great value when judiciously used, but under abuse are capable of an incalculable amount of harm.

The quantity and variety of food necessary to any individual, depends, of course, upon the character of his labor, state of health, climate, etc. About three pounds and a-half a day has been found by experimentation to be sufficient for an ordinary man.

The teeth of man indicate him to be omnivorous, and speak plainly that his health will be best preserved by a varied diet; but no food introduced into the system is of value until absorbed and appropriated by assimilation.

DIGESTION.

The inorganic principles constituting the food of man are not in need of any preparation to render them of service to his organism. They generally pass through the intestinal canal, and from it are taken at once into the circulation, and delivered by its rapid current to every portion of the system. Such is not true, however, of the organic. Their composition is not so simple. Compound in nature they contain, besides nutritious material, much that is non-nutritious, and even injurious. It is, therefore, necessary that they should be subjected to successive mechanical and chemical stages in order to separate the beneficial matter, and render it in the best possible state for assimilation. This process has been denominated digestion.

As in the chemical laboratory we need apparatus adapted for the purposes of its use, so nature has varied the forms of the digestive tract of animals according to the character of their food; and the scale of change runs from a single pouch with a single opening to the extended and complicated canal and appendages of the mammalia. In the carnivora, where the food has very little waste material, the canal is but three or four times the length of the body, while in the herbivora, where but a small proportion is nutritious, and an excessive quantity excrementitious, the canal is ten, twelve, or even twenty-eight times the length of the animal. As man occupies a position between the members of these two orders he has a canal which exceeds his own length only six or seven times.

The food being taken into the mouth is thoroughly mixed with the oral fluids, comminuted, and passed down into the stomach, where it is subjected to the action of other fluids, motion, and an elevated temperature, then pushed along into the intestinal canal, and mixed with

other secretions, after which a portion is absorbed, and the remainder voided from the system. Such is the general nature of the digestive process. Specially considered, the first stage is prehension, and consists in taking food and placing it in the mouth, by organs which act for this purpose, namely,—the bill in birds, the trunk in the elephant, the lips and teeth in ruminants, the claws and teeth in carnivorous animals, and the lips and teeth, aided by the hands, in man. The infant takes its food by the familiar process of sucking, and the adult drinks by a modification of the same. In sucking, the walls, floor, and roof of the mouth form the barrel of the syringe, in which the tongue acts as a piston, creating a vacuum into which the fluid is drawn with considerable force. Respiration is not interfered with in sucking or in drinking, as it is only momentarily arrested during deglutition.

Mastication constitutes the second stage of digestion, and by it the food is triturated and comminuted to a degree of fineness favorable to a thorough admixture of the fluids of the mouth. Owing to the ease with which the after digestive processes can be accomplished with animal food, mastication in the carnivora is quite limited, the food being bolted. This is markedly distinctive in comparison with the laborious mastication of the herbivora, which chew their food and then rechew it into the form of a cud.

The teeth and the bones of the superior and inferior maxilla, constitute in man the passive organs of mastication, the active ones being the muscular structures. Teeth are the hard organs of mastication, situated in the alimentary canal anterior to the pylorus. The typical form of a tooth is a cone, and all teeth are a modification of it, or a combination of them. Man possesses in adult life thirty-two teeth—sixteen in each jaw—arranged in a parabolic curve, the upper oral teeth articulating over the lower, and the upper posterior teeth upon the lower ones. This number of dental organs constitutes the permanent set, which replaces the deciduous or temporary set of twenty—ten in each jaw. Counting from the middle line of the face there are on each side, in the deciduous set, two incisors, one cuspid, and two molars; and in the permanent set, two incisors, one canine, two bicuspids, and three molars.

The several kinds of teeth differ in the form of their crowns and in the number of their roots, hence their different names. The incisor teeth have wide, thin crowns, slightly curved in front, and smooth, or longitudinally furrowed, but somewhat concave or beveled in their posterior surface. Their edges are chisel-shaped, and are adapted for cutting; their roots are round, slightly flattened, especially the laterals. The upper central incisors are larger than the laterals, but in the lower jaw the reverse is true. The canine teeth are larger and thicker than the incisors, and are distinguishable by the pointed character of their

crowns—convex in front, and slightly concave behind—also by the great size, length, and strength of their single root. The upper canines are larger and longer than the lower. From the fact that they possess but a single, spear-pointed cusp, these teeth are sometimes called the *cuspidati*. The bicuspid teeth, sometimes called the premolars, have a double crown, furnished with two pointed cusps, the outer of which is the longest. These teeth, as a rule, have but a single root, or two roots fused into one, although the first superior bicuspid not infrequently has two distinct roots, and most have two pulp canals. The molars are the largest teeth of the set. The first molar is the largest, and the third, sometimes called the wisdom tooth, is the smallest. Their crowns present four cusps, and sometimes more. The first and second lower molars have each two roots; the upper, three—two outer and one inner. The roots of the wisdom teeth are generally united, but show marks of subdivision into two in the lower, and into three in the upper jaw, though frequently molars are found with four, or even five or six distinct roots. Every tooth is anatomically divided into a crown, neck, and root. The crown is the portion above the free margin of the gum; the root that portion below it; and the neck the constricted part between the crown and the root, just at the margin of the gum. It should be distinctly understood, however, that there is really no such portion as the neck, the division being arbitrary, and established for convenience of description.

Histologically, the teeth present three kinds of structure, viz.: enamel, cementum, and dentine. The enamel is composed of a large number of hexagonal prisms, which have a general direction from the dentine outwards, and exhibit a wavy appearance. This is the hardest structure in the body, and forms the crowns of the teeth. The dentine is softer than the enamel, and forms the body of the tooth, retaining, after the removal of other tissues, the characteristic form of the tooth. It is a hard, elastic substance, of a slightly yellowish tinge, and consists of an organic matrix, impregnated with calcareous salts. It has tubes, known as the *dentinal tubuli*, running everywhere towards the surface of the tooth. These *tubules* have walls distinct from the matrix or mould of the tooth, and do not run perfectly straight, but spirally, with primary and secondary curvatures. The *fibrili* in the *tubuli* are continuous with the odontoblast or formative cells upon the surface of the pulp. The cementum forms a coat of variable thickness over the roots of the teeth. It is closely allied to bone, both physically and chemically, and consists of an organic matrix of basal substance containing lacunæ. Vascular canals, corresponding to the Haversian canals of bone, are sometimes, but rarely, met with. The cementum overlaps the enamel at the neck of the tooth, and is supposed to be continued up in a very thin layer over the entire crown,

forming Nasmyth's membrane. Within the centre of every tooth is a chamber, varying in form with the tooth, known as the pulp cavity, in which is found the formative organ—the pulp. The pulp is a highly vascular, gelatinous matrix, containing nerve filaments. The teeth are connected by the alveolar process wlth the maxilla, the union of them with the process being known as gomphosis. Between the roots of each tooth and the walls of its alveolus is a delicate structure—the alveolo-dental membrane—which aids in the nutrition of the tooth.

The development of the human teeth is a subject of interest and importance. Prior to the commencement of any calcification or the existence of any hard organ, there is always a special deposition of soft tissues at the spot where a tooth is destined to be formed, and the name of tooth germ has been given to it. All, or at least part, of this tooth germ becomes converted into dental tissue by the deposition within it of the various lime salts, so that teeth are not secretions but conversions. The teachings of "Goodsir," by which the process of development is divided into periods, under the names of "papillary," "follicular," and "eruptive," which have been so long adopted, must now be abandoned as totally unscientific, and based upon a false conception. Tooth germs are never found upon the surface, but are always situated beneath it. Every tooth germ consists at first of two portions only, the enamel germ and the dentine germ, and these come from distinct sources. Any other germ that may be subsequently formed is purely of a secondary character. The existence of the enamel organ is, therefore, invariable, and never omitted, but the subsequent formation of enamel is an independent affair. In lower animals we find many instances, in which, notwithstanding the early existence of an enamel germ, there was no formation of enamel.

The enamel germ is derived from the mucous membrane, and the dentine germ from the sub-mucous tissue—two distinct sources. It has often been advanced against this belief that we have no analogy in nature of a single organ coming from two distinct sources, but it should be borne in mind that a tooth, though a single organ and a part of one great economy, is nevertheless, in relation to itself, an economy, *solus*, containing three separate organic tissues; and that, as in the original ovule, the bony tissue and the internal integument, so different in nature, came from different layers of the blastoderm, so is it in the case of a tooth.

(TO BE CONTINUED.)

The Independent Practitioner is hereafter to be edited in its dental department by Dr. W. C. Barrett, of Buffalo.

OXYGEN.

BY J. D. STEELE.

O (Oxygen) is the active principle of the atmosphere. Comprising one-fifth of the common air, it is ever-present, and ever-waiting. We gather a basket of peaches and set them aside. In a short time, black spots appear, and we say they are decaying. It is only the O corroding them, *i. e.*, breaking up their chemical structure to form new and unpleasant compounds. To prevent this action, we place the fruit in a can, heat it to expel the O, and seal it tightly.—We open the damper of the stove and the air rushes in. The O immediately attacks the heated fuel. Every two atoms combine with an atom of C (carbon) and fly off into the air as CO_2, (carbonic acid).—We cut a finger, and soon feel the O at work upon the quivering nerve beneath. We apply a strip of "court-plaster" to keep out the air and give nature an opportunity to heal the wound.*—Our teeth decay only because of the action of the O. The dentist saves them by filling any break in the enamel with a cement which is already oxidized, or with a metal, as Au. (gold) or Pt. (platina) which has little affinity for O.—The H_2O (water) in the cistern becomes foul and putrid. We uncover it; in rushes the O, picks up each atom of impurity, and sinks to the bottom. The sediment we find when it is cleaned in the spring, is but the ashes of this combustion.†—The blacksmith draws a red-hot iron from his forge. While the metal is glowing, the O forms scales of Fe_3O_4 (the black oxide of iron) which fly blazing in every direction.‡—We wipe our knives and forks, and lay them carefully away; but if we have left on them a particle of moisture, since H_2O (water) favors chemical change, the O will find it, and corrode the steel.—An animal dies, and the O at once begins to remove the body. The atoms which have been used to perform the functions of life, are separated by the O, and set at liberty to enter into new combinations.

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*The treatment of a burn as well as a cut consists in the immediate exclusion of the air. It is a mistake to suppose that a salve will "draw out the fire" of a burn, and heal a bruise or cut. The vital force must unite the divided tissue by the deposit of material, and the formation of new cells.

†As the vessel sets sail from London, the captain fills the water-casks with water from the River Thames, foul with the sewage of the city, and containing 23 different species of animalcules; yet, in a few days, the O contained in the air dissolved by the H_2O, will have cleansed it, and the H_2O, will be found sweet and wholesome during the voyage.

‡Quite in contrast to this pyrotechnic display is the action of the O upon the Fe contained in writing-fluid. At first the words are pale and indistinct, but in a few hours the O, noiselessly combining with the metal, brings out every letter in clear, bold characters upon the page.

We take the air into our lungs. Here the blood* absorbs the O, and bears it to all parts of the body, depositing it wherever it is needed. Laden with this life-giving element, the vital fluid sweeps tingling through every artery and vein, distends each capillary tube, sends the quick flush to the cheek, combines with a portion of the food thrown into the circulation from the stomach, breaks up every worn-out tissue, burns up the muscles, and sets free their forces, until at last it comes back through the veins dark and thick with the products of the combustion—the cinders of the fire within us.

All ordinary processes of fermentation, decay, putrefaction and fire are produced by a union of O with a substance, and are only different forms of oxidation. They differ in the time employed in the operation. If O unites rapidly, we call it fire; if slowly, decay. Yet the process and the products are the same. A stick of wood is burned in the stove, and another rots in the forest, but the chemical change is identical. In the combination of an atom of O, a certain amount of heat is produced. Hence, the house that decays in fifty years, gives out as much heat during that time as if it had been swept off by a fierce conflagration in as many minutes.

The body is like a stove in which fuel is burned, and the chemical action is precisely like that in any other stove. This combustion produces heat, and our bodies are kept warm by the constant fire within us. We thus see why we fortify ourselves against a cold day by a full meal. When there is plenty of fuel in our human furnaces, the O burns that; but if there is a deficiency, the destructive O must still unite with something, and so it combines with the flesh;—first the fat, and the man grows poor; then the muscles, and he grows weak; finally the brain, and he becomes crazed. He has simply burned up, as a candle burns out to darkness.

As soon as we begin to perform any unusual exercise, we commence breathing more rapidly,—showing that, in order to do the work, we need more O to unite with the food† and muscles. In very violent labor, as in running, we are compelled to open our mouths, and take deep inspirations of O. This increased fire within, elevates the temperature of the body, and we say "we are so warm we pant." Really it is the reverse. The panting is the cause of our warmth.

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* The blood is full of red corpuscles or cells containing Fe. These are so tiny, that a million of them cluster in the drop which will cling to the point of a needle. Quickly assuming a tawny hue, like the decayed leaves of autumn, they change so rapidly that 20,000,000 perish with every breath.—DRAPER.

These cells when fresh act like little gas-bags in carrying the O through the body.

† It is probable that a portion of our food, especially the carbonaceous, is oxidized directly without becoming an integral part of the body. The heat thus set free by the principle of the correlation of force, may be coverted into muscular force.

During sleep the organs of the body are mostly at rest, except the heart. To produce this small muscular exertion very little O is required. As our respiration is, therefore, slight, our pulse sinks, the heat of our body falls, and we need much additional clothing to keep warm.* Thus we require O not only to keep us warm, but also to do all our work. Cut off its supply, and we grow cold; the heart struggles spasmodically for an instant, but the motive power is gone, and we soon die.

Our muscles, as well as the food from which they are formed, consist of complex organic bodies, and the tension of the pent-up force is very great. Thus in flesh, starch, sugar, etc., the molecules are very large, and, when these oxidize into the smaller ones of water, carbonic acid, and ammonia, the hidden energy thus liberated gives us heat and strength.† It is merely the transference of force from one organic body to another. One decays, the other grows. One drops in the scale of life, the other rises. One loses as the other gains. As no matter is either lost or gained in any chemical change, so also no force is lost or gained, but all must be accounted for. Action and reaction are equal in chemistry as in philosophy.

A man weighing 150 lbs. has 64lbs. of muscle. This will be burned in about 80 days of ordinary labor. As the heart works day and night, it burns out in about a month. So that we have a literal "new heart" every thirty days. We thus dissolve, melt away, in time, and only the shadow of our bodies can be called our own. They are like the flame of a lamp, which appears for a long time the same, since it is "ceaselessly fed as it ceaselessly melts away." The rapidity of this change in our bodies is remarkable. Says Dr. Draper: "Let a man abstain from water and food for an hour, and the balance will prove he has become lighter." This action of O, so destructive—wasting us away constantly from birth to death, is yet essential to our existence. Why is this? Here is the glorious paradox of life. *We live only as we die.* The moment we cease dying, we cease living. All our life is produced by the destruction of our bodies. No act can be performed

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* Animals that hibernate show the same truth. The marmot, for instance, in summer is warm-blooded; in the winter its pulse sinks from 140 to 4, and its heat corresponds. The bear goes to his cave in the fall, fat; in the spring he comes out lean and lank. Cold-blooded animals have very inferior breathing apparatus. The frog, for example, has to swallow air by mouthfuls, as we do water. Others have no lungs at all, and breathe in a little air through the skin, enough to barely exist. Is it strange they are cold-blooded?

† This latent force is called potential, and the same force, when sensible, is termed dynamic. In the former case it is hidden and ready to burst out at any time; in the latter it is in full action. Potential force is contained in the powder of a loaded gun. Dynamic force drives the bullet to the mark.

except by the wearing away of a muscle. No thought can be evolved except at the expense of the brain. Hence the necessity for food to supply the constant waste of the system,* and for sleep to give nature time to repair the losses of the day. Thus, also, we see why we feel exhausted at night and refreshed in the morning.

God has no idlers in His world. Each atom has its use. There is not an extra particle in the universe. The mission of oxygen, so destructive in its action, is therefore essential, that every waste substance may be collected and returned to the common stock for use in nature's laboratory. In performing this general task, its uses are most important and necessary. It sweetens water, it keeps the avenues of the body open and unclogged,† it preserves the air wholesome. It becomes, in a word, the universal scavenger of nature. Every dark cellar of the city, every recess of the body, every nook and cranny of creation, finds it waiting ; and the instant an atom is exposed, the oxygen seizes upon it. A leaf falls, and the O forthwith commences its destruction. A tiny twig, far out at the end of a limb, dies, and the O immediately begins its removal. A pile of decaying vegetables, a heap of rubbish, the dead body of an animal, a fallen tree, the houses we build for our shelter, even the monuments erected above our final resting-place, all are gnawed upon by what we call the "insatiate tooth of time." It is only the constant corrosion of this destructive agent—oxygen.

Each adult uses daily 1½ lbs. of O. The combustion of 1 lb. of coal requires 2⅔ lbs. of O ; so that the ship which burns 1,000 tons in crossing the ocean, takes out of the air 2,666 tons of O. Supposing the population of the earth to be 1,200,000,000, and each person to consume 1 lb. of O, adding as much more to sustain fires, twice as much for the wants of animals, and four times as much for the varied process of decay, the daily consumption of O reaches the enormous sum of 4,800,000 tons (Faraday). Yet the atmosphere contains over one quadrillion tons, and even this vast aggregate is a mere fraction compared with the O locked up in the ocean and the rock.

If the air were undiluted O, the fire element would run riot everywhere. Metal lamps would burn with the oil they contain. Our stoves would blaze with a shower of sparks. A fire once kindled would spread with ungovernable velocity, and the universal conflagration would quickly wrap the world in flame.

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* This food must be organic matter endowed with potential power treasured up in the plant. When it is transformed into flesh, perhaps made still more vital in the process, we have this force standing ready to be used again at our pleasure. When we will it, the O combines with the flesh and sets free the energy for us to apply.

† Huxley very prettily calls O, in this connection, the "great sweeper" of the body, since it lays hold of all the waste matter of the system, and burning it up removes it out of the way.

Questions and Answers.

I have received some amalgam from a party, which sets very quickly, and looks very white and pretty, but does not get as hard as some. Can you tell me what makes these peculiarities?

We suppose it is the addition of zinc.

Does not the extreme duration of teeth and other bones prove that their inorganic or mineral ingredients resist "the encroachments of time," much longer than the organic or animal structure?

We think not. Fossil bones deposited in the ground before the creation of man, have been found to contain considerable animal matter. Gelatine, which may be made into a good glue, has been extracted from bones many centuries old.

Please give your ideas regarding extracting teeth by electricity, and oblige,

H. CLAYTON.

If for our ideas, we give our experience, it will not be very favorable. In our hands it has been unreliable, and sometimes "more painful than the disease."

Is it true that the poor have better teeth than the rich? If so, why?

We think it is true, and we believe it is also true that the poor, as a class, have better developed jaws, with teeth set in them firmer and in a more regular order. This is because from early childhood they use their teeth more, and their general system is more vigorous. Their coarse, hard food requires chewing, and their strong digestion more completely assimilates it. This hard chewing develops the jaws, the alveolus, and all the organs of mastication, and the perfect assimilation of food gives better material, with better physical combination of tooth substance. As a rule their mouths are cleaner, though never washed; for the salivary glands and mucous follicles throw into the mouth fluids which defy the power of alkali or acid to change its general character, and ammonia and nascent nitric acid is almost unknown. Among the poor we seldom see the peaked, narrow jaw; nor do we find among the rich, very commonly, the wide, large, symetrical jaw, especially where the enervating effects of riches has continued through three or four consecutive generations.

What produces sensitiveness in the teeth?

There is considerable controversy on this point. Some contend sensitiveness in teeth is caused by the transmission of vibrations to the pulp through a fluid or some other conductor. But it can hardly be that either a neutral fluid in the numerous tubes, or that the columnal walls constituting these tubes could be the cause of such exquisite sensitive-

ness. 1st. It would be supposable, if this were the case, that the nearer the pulp we come, the keener the sensation. But every dentist of observation knows that by the removal of a layer of extremely sensitive dentine quite remote from the center of the tooth, the portion underneath, and therefore nearer the pulp, is often found comparatively painless, showing that altered sensitiveness is due to a different local condition of the vital substance which permeates the tooth. 2d. The theory that sensitiveness is caused by the transmission of vibrations through a neutral zone does not harmonize with the cause of sensation in all other portions of the body. Everywhere else it is caused by impressions on nerve extremities. In the generally accepted meaning of the term there *may* not be nerves in the tooth substance, and yet many things seem so nearly to establish it that few hesitate to say it is possible. It may be so, for we are continually discovering nerves where previously we could not discern them. But whether the tubes running toward the pulp are filled with nerve fiber or not, there are minute spaces there between the dentinal sheaths constituting tubes which are filled with something not altogether unanalogous to nerve substance, capable of transmitting impressions in the same way nerves transmit them. Is it presumption to call this nerve filament, and to call the walls nerve sheaths? But further research may prove that between these bony walls, there are the sheaths proper, and that this sheath contains nerve substance. Perhaps, if tooth substance could be as easily examined as many other tissues of the body, the minute extremities of nerves could now be seen there, as they are already discovered in spaces which seemed equally impenetrable by those organs of sensation we call nerves.

What prevents the speedy abrasion of the grinding surface of the teeth? With the severe use teeth are put to, one would suppose a few years would suffice to dissolve and grind them all away.

No; not so bad as that. The enamel is a very hard substance and it resists acids, and the trituration of food, very tenaciously. Even a dead tooth wears away very slowly. *But* why did we say *even* a dead tooth? Does not a live tooth wear away as rapidly as a dead one? We all know that it does not. Why not? First, undoubtedly, because its organization is more completely intact. Secondly, because the live tooth is a *physical* organization. Now, why should this make a difference? Because the very idea of a *physical* condition supposes a circulation and a vitality which resists encroachment. The very fact that even sometimes fractured tooth-substance is reunited, shows that its circulation supplies the broken parts with an appropriate and strong cement. So in case of abrasion. Though there may not be enough to resist all acid and grinding of grit, etc., the circulation within the

tooth-substance does bring to the surface ingredients which increases its solidity, and above even this added solidity, gives power to resist disintegration.

Will not others give us answers to questions found in this department? And let those who have difficulties in their study or practice, be free to ask questions.

Miscellaneous.

NITROUS OXIDE, AS A GAS AND A LIQUID.

BY J. H. PARKINSON, L.D.S., GLASGOW.

Of all the anæsthetics which have been proposed for use, there is, perhaps, none so simple and so safe as nitrous oxide; at all events, for minor operations, such as the majority of those in dental surgery. Although one of the first anæsthetics discovered, as long ago as the year 1800—and of recent years used many thousand times a year—an accident caused by its *direct anæsthetic* property, I believe, has never been known to result from its administration; very unlike those more popular but more powerful drugs, ether and chloroform. So entirely harmless it is when pure that its administration to the extent of producing temporary intoxication, accompanied by that remarkable exhilaration, when slightly diluted with air, which has earned its name of laughing-gas has long been a common experiment in ordinary chemistry classes. Unfortunately, for various reasons, many practitioners employ the more dangerous anæsthetics even for the minor operations to which nitrous oxide is so well suited; or are very frequently deterred from using chloroform by the undoubted small amount of danger attending it. *Small though it is* (it being estimated that only one case in 16,216 has proved fatal even in the case of chloroform), quite a number of surgeons prefer in minor operations to allow their patients to suffer a certain amount of pain—a pain which would be absolutely unnecessary did they only familiarize themselves with the use of this simple anæsthetic. The causes of this preference for the more powerful agents are not perhaps very far to seek. The surgeon, in the first place, is very thoroughly taught during his student years the use, and the precautions necessary for the administration of, and, we may add, the dangers attending, ether and chloroform; whereas not being experienced in the administration of nitrous oxide he is less inclined to adopt it even in cases where it is specially and obviously advisable. In the second place, until comparatively recently the drug was not to be procured in a perfectly pure and easily administerable state like ether and chloro-

form, but required a formidable amount of apparatus to prepare, and a still more formidable amount of watchfulness and labor if it were to be prepared pure and fit for use; besides an amount of practical chemistry which is perhaps rather out of the line of the ordinary busy surgeon, and still more of the dental surgeon. The gas is now, however, to be obtained as a regular article of commerce, compressed into a liquid form in portable and very convenient iron bottles, which hold within a space of 12 inches long by 3½ inches diameter 100 gallons; or proportionably larger for 500; about five gallons being usually sufficient for one administration. Besides the great convenience of their being able to purchase a supply of nitrous oxide as readily and with as much guarantee for its purity as in purchasing a quantity of chloroform and even more so (because there is no possibility of nitrous oxide changing in composition *when kept in iron bottles* with any external influence, such as light and moderate heat, whereas chloroform under the influence of light decomposes forming hydrochloric acid and liberating free chlorine), there is much more safety in using the gas so prepared, inasmuch as it is possible to employ in its manufacture, on a large scale, a number of precautions which are very cumbrous and very inconvenient in making it in small quantities; but, further, there is much greater certainty of its purity than when made on the small scale, as the mere fact of the presence of a notable amount of impurity would *entirely prevent* its being condensed in anything like the proper quantity into the bottle. This may be seen from the fact that whereas nitrous oxide condenses under a pressure of 30 atmospheres, nitrogen would require about 300 atmospheres, and nitric-oxide about 270. These being the two most frequently found contaminating gases. A purchaser, therefore, has only to weigh his bottle when he receives it, and again after it is empty, to be satisfied that he has the proper quantity of liquid in the bottle, and therefore that it must be *extremely pure* and free from nitrogen, etc., conditions difficult when made on a small scale, and with ordinary apparatus, and especially when trusted, as it sometimes is, to an unskilled dentist's apprentice as a sort of extra duty. A surgeon or dentist, in fact, who made or prepared his own nitrous oxide would be as shortsighted and as likely to obtain unsatisfactory results, unless he were a practical chemist, as would be the ordinary practitioner who under similar conditions, instead of purchasing his chloroform from the skilled manufacturer, prepared it himself on a small scale. He would be likely to obtain a far inferior quality, he would certainly involve himself in infinitely more trouble, and probably in the long run in considerable expense.

Great care must be taken that the ammonia is free from chlorides and sulphates, and nitric or carbonic acids, as these would introduce mpurities into the ammonium nitrate which would seriously deterio-

rate the resulting gas. The ammonium nitrate, when heated is resolved, entirely into nitrous oxide gas and water, provided the material be pure and the heat properly regulated. Any chlorides, sulphates, or carbonic or nitrous acids in the ammonium nitrate cause serious impurities in the nitrous oxide, viz., chlorine and nitric oxide, both of which are extremely deleterious to inhale, and even with the greatest care to secure purity of the original materials the gas requires careful treatment to remove traces of these gases, which will generally make their appearance in spite of all precautions. The heat also requires most careful regulation; at a temperature between 340°F. and 480° F., pure N_2O gas is given off; above the latter temperature impurities begin to make their appearance, whilst at 600° F., nitrous acid, nitrous oxide, and even ammonium nitrate, water, and nitrogen are the products. This regulation of the heat is one of the princiual difficulties of making the gas on the small scale. In making the gas this way, a thermometer should be inserted in the flask and closely watched, or if the temperature be not regulated, *especially* when making the gas on the large scale and for condensation, and it should happen to rise too high, the resulting gas would be found *quite incondensable* and would have to be all wasted and the batch thrown away.—*British Journal of Dental Science.*

THE AGENCY OF BACTERIA IN MATERIAL METAMORPHOSIS.

BY DR. C. S. DOLLEY, OF ROCHESTER.

In the matter of nutrition, we find the materials of both organic and inorganic nature called into play. The great bulk of the plant world derives its nourishment from inorganic matter, the plants taking the crude materials as they are furnished in the salts of the soil, elaborates them in its cells and forms from them its cellulose, its starch, its chlorophyll and its diastase. On the other hand, animal life depends in as great a degree upon materials which have been already elaborated in the vegetable kingdom. These are mainly the plant's starch and gluten, in one shape or another, which are taken direct from vegetatables, or—in the case of carnivorous animals—simply taking the results of their assimilaiton by animals. Now suppose this double drain upon inorganic nature were to continue with no return. How long would it be possible for life to exist? Our farmers have learned, many of them rather late, that they cannot demand food from the soil without rendering some return. They must, in the shape of fertilizers of some kind, begin paying back a tribute of which their ancestors thought to defraud the earth which gave them bread.

What are these fertilizers? No more than materials which have completed what we may call the circle of nutrition. Materials have been

taken from the earth in the first place to form plant tissue, this in its turn, has been appropriated by the animal economy and these very animals yield themselves up at last, in the shape of super-phosphates, etc., to the soil, which takes back its own.

This seems simple enough, but it is not spontaneous. We know of beef being sent from Australia to England, and reaching that country as fresh as though but just from the English *abattoirs*. We wish fresh fruits out of season, and we have only to step to our cupboards or to the store and to obtain that which retains all the flavor of freshly-cooked fruit. How is this?—simply because we have been able to exclude from the meat and from the fruit, these very little organisms which we are considering. We have either excluded them entirely or rendered them temporarily inactive by reducing the surrounding temperature. But let us open our fruit cans, or expose the meat during its voyage, for a few hours only, to the warm air, and we find it rapidly undergoing change, on the one hand, fermentation; on the other, putrefaction; two phenomena invariably accompanied by the presence of bacteria, and which cease upon their abstraction.

We therefore find these minute organisms performing another grand service in nature's economy by completing the great circle of nutrition, causing by their presence, organic bodies to be hastily broken up into their inorganic elements that they may once more begin the everlasting cycle; and were it not for bacteria, as Cohn puts it, "the material embodied in animals and plants of one generation, would, after their decease, remain bound, as are the chemical combinations in the rocks; new life could not develop because there would be a lack of body material."

All bacteria are not ferment bacteria, neither do all attend putrefaction, but particular varieties invariably accompany each of these processes.

Lemon Juice in Diphtheria.—Dr. J. R. Page, of Baltimore, in the New York *Medical Record*, May 7, 1881, invites the attention of the profession to the topical use of fresh lemon juice as a most efficient means for removing false membrane from the throat, tonsils, etc., in diphtheria. In his hands (and he has heard several of his professional brethren say the same) it has proved by far the best agent he has yet tried for the purpose. He applies the juice of the lemon, by means of a camel's hair probang, to the affected parts every two or three hours, and in eighteen cases in which he has used it the effect has been all he could wish.

Common baking soda put in an aching tooth often gives instant relief.

THE CONTAMINATION OF OUR DRINKING WATER.

BY J. G. RICHARDSON, M.D., PHILADELPHIA, PA.

I can probably impress the importance of avoiding the contamination of our drinking water by means of a couple of anecdotes better than in any other way; and if the lessons these two true stories teach were constantly borne in mind, and acted upon throughout the community, thousands of valuable lives would, I doubt not, annually be saved.

The famous tea-water pump in Broad street, near Golden Square, London, is believed to have been the means of killing five hundred persons with cholera, in a single week, during the epidemic of 1854. Its agency in disseminating this fearful scourge was detected in the following curious way: It has long been known that water which contains five or six grains of lime, or magnesia, to the gallon, is much the best for making tea, because this amount of the mineral ingredients mentioned prevents the solution of certain astringent principles of the leaf. Thus, the Broad street pump became known, and highly appreciated, because it furnished water impregnated with exactly the right quantity of lime to make "the cup which cheers, but does not inebriate," in its full perfection; and when the cholera broke out in its neighborhood, people, who removed to other quarters of London, continued to send to this pump to procure their tea-water. One old lady in particular, who took refuge in the distant suburb of Hampstead, sent her maid-servant every day three miles for a kettle of water, to the Broad street pump, and this old lady and her maid were the only persons attacked with cholera in Hampstead. The attention of health officers was finally attracted to the pump as a disseminator of disease, and after taking away the pump-handle the pestilence notably decreased in the neighborhood. The water of this pump-well was afterwards proved to have become contaminated by the soakage into it of discharges from the bowels of cholera patients using cess-pits in its vicinity; such discharges being now known to form the chief agents in propagating this terrible disease.

Professor Flint relates a remarkable instance in which it was possible to trace the spread of an outbreak of typhoid fever, which is often so fatal in the country, in the most conclusive manner to the poisoning of a well by discharges from the bowels of a patient ill with the disease. A young man travelling by stage-coach through the State of Vermont was taken ill, and, when he could go no further was left at the tavern of a small wayside village to be cared for; his illness soon proving to be typhoid fever. Now, it happened that a small brook in a shallow valley divided the village into two portions, each consisting of about half a dozen houses. In the course of a few days new cases

of typhoid fever made their appearance in that half of the village to which the tavern belonged, and soon every house on that side of the stream *except one* was invaded, whilst on the other side of the brook not a case occurred. It appears that the tavern well, which was the only one which had been dug on that bank of the stream, furnished the water supply to all the families *but one* belonging there. *That one family* had had a falling out with the landlord of the inn, and in consequence of this quarrel they drank none of the water, which was rendered impure by the soaking into it of the specific poison of typhoid fever, which struck down all of their neighbors in that half of the town.

Recent observations upon the propagation and spread of diphtheria tend to show that in all those instances of excessive malignity, where whole families of children have been swept away in a few weeks, careful examination will reveal the cause of this unusual mortality in a water supply contaminated by washings or soakings from cess-pits or other receptacles for the evacuations of the bowels of more or less diseased human beings. Direct experiment has proved that in a light porous soil a well eighty feet deep will drain a mass of soil in the shape of an inverted cone, the apex of which is at the bottom of the well, and the base of which has a diameter of two hundred feet, or more than twice the depth of the well. Hence, if in the center of a large village building lot one hundred and fifty feet square, is dug the well for supplying the mansion with water, and at any one of its corners, as far distant as possible, is sunk a more or less shallow pit to serve as a cess-pool, the chance of contaminating the first pit with rain-water washings from the second pit or cess-pool is very great, and the danger of infecting the whole family with cholera, typhoid fever (and probably some other maladies), should a single case of these diseases find access to the grounds, imminent. Of course, the same conclusions hold good for the country farm-houses or dwellings, when, from motives of convenience, but a short distance is interposed between the sides of the hole which is called the well, and furnishes the drinking-water, and the hole which is called a cess-pit and used as a receptacle for filthy, often, poisonous excrements. Moreover, there are, no doubt, many instances where, owing to the inclination of beds of sand or gravel, strata of rock, and so forth, impurities of these and other dangerous varieties may be carried by underground currents much further than the distances as measured on the surface of the earth which I have mentioned. In other words, a cess-pool on a hill-side, two hundred feet or more away from a well, may infect the water of the latter, if underground currents favor such contamination. Practically, it is beyond all question that, in multitudes of instances, the cess-pits *feed the wells;* and it is equally certain that such wells *feed the graveyards* of

villages and districts where this culpable neglect of hygienic precautions is allowed to occur. In this connection, I cannot too strongly impress upon my readers that filtration through the earth, sufficient to remove visible impurities, does not necessarily render water fit for use, that is to say, *clear* water is not necessarily *pure* water any more than *cold* air is necessarily *pure* air.

DEAR ITEMS:—We don't suppose you will care for an individual opinion, but we cannot but feel sorry that you have made such a change. We do not object to the price, for we would sooner have paid a dollar for the old style.

THE ITEMS, as it used to be, was a dental journal entirely different from anything of its kind, both in make-up and its general appearance, and we believe owed its great success to both. It was liked for its short articles on various subjects, and we have been sorry, for one, to see of late the tendency toward long copied and uninteresting articles, no doubt very scientific in their way, but to the majority of dentists quite uninteresting. Now comes the change in form, which at once classes it, especially in appearance, with other journals. Perhaps we are prejudiced, but the color of the cover suggests *Cosmos* and the S.S.W., D.M. Company, so strong that we at once lose a certain amount of interest in the ITEMS. Of course, we wish you success, and hope the change may benefit yourselves and the profession. But I cannot help believing that if a vote of your subscribers were taken there would be found a large majority in favor of the ITEMS as it was even at the additional cost of 50 cents.

Please receive this criticism in as kindly a spirit as it is given.

Yours, X.

The above is a sample of several letters we have received of regrets. In fact, every time we have enlarged, some of our friends have sent their regrets, so fearful we should drift away from our crisp, plain, practical style. We certainly consider this an evidence that our efforts have been appreciated. But this is not the only kind of letters we receive. From every direction come compliments, and we assure our more cautious brethren that they shall be disappointed in finding us walking on stilts. They shall yet see in this change nothing but added merit, as they have seen it in every advance step we have taken.

IT IS said by one who has had long experience in the method, that saturating posts and other wood to be kept under ground, in linseed oil, in which a large quantity of pulverized charcoal is mixed, will preserve them for many years.

TO GIVE GOLD ALLOY THE COLOR OF GOLD.

The following directions are given by Herr E. Schlosser, of Vienna:

Gold alloys, particularly those containing copper, acquire through repeated heatings during their manufacture, an unseemly brown or brownish black color, caused by the oxide of copper, to remove which they are boiled or pickled in very dilute sulphuric or hydrochloric acid, according to the color they are to have. If we have an alloy containing only gold and copper, either sulphuric or hydrochloric acid is employed, for gold is not attacked by either of them, while the oxide of copper dissolves so easily that after the pickling the articles have the color of pure gold, for the surface is covered with a thin film of gold. If the alloy consists solely of gold and silver, the liquid employed is nitric acid, and the articles are left in it a very short time; the acid dissolves a small quantity of silver, and the articles acquire the color of gold. If the alloy contains both copper and silver, besides the gold, the method of pickling can be varied to suit the color it is desired to give to it. If, for instance, it is put in sulphuric acid, the copper alone is dissolved, and the color obtained is that of an alloy of gold and silver, for the surface consists of the two. If nitric acid were used, both copper and silver would be dissolved, and in this case the color obtained would be that of pure gold. The articles are first to be gently heated and allowed to cool. The object of the heating is to destroy any grease or dust that adheres to them. If they are soldered with soft solder, they cannot, of course, be heated, and must be cleansed from grease and dust by first putting them in a strong lye, then washing with water and putting them in the acid. The acids are used dilute, usually in proportion of one part of concentrated acid to forty parts of water. The articles are placed side by side in a porcelain or earthenware dish, and the dilute acid poured over them. From time to time one is taken out to see if it is yellow enough. When the proper color has been reached they are washed in clean water and dried.—*Dental Record, London.*

Cold Fire.—M. Friedel has introduced a new liquid hydro-carbon, which, according to recent experiments, seems to be possessed of extraordinary qualities. It boils at one hundred degrees Fahrenheit, gives a brilliant white light, unaccompanied by heat, and the slightest puff of wind will extinguish it in case of accidental ignition. The corner of a pocket-handkerchief, or even the finger, can be dipped into it, lighted and used as a temporary torch, without any injury to the novel wick. Owing to the cold produced by the rapid evaporation of the liquid it would thus seem possible, by means of this new agent, to make one finger serve as a taper while sealing a letter with the others. —*Progress of Science.*

Miscellaneous Editorial.

THE TITLE OF M.D.S.

Are we not too far imitating the English in supplying titles to our great men, and to some who are not so great? These glittering abreviations are almost interminable there; and they are not applied alone to their scholars. They often mean little more than cast, or promigeniture, or are the abreviations of some local society. Talk of the disgrace in this country of buying titles from institutions of learning, or of receiving them as a merely honorary distinction, without having earned them! This is only aping our neighbors across the water; when titles here become as common, numerous and meaningless as there, they will be of no more worth.

We have received notice, with regret, of a bill now before the New Jersey Legislature proposing to allow the dentists of that State to confer M.D.S., on each other. It is similar to the act past by the New York law-makers. Our brethren would do well to go slowly in this direction. Any title which only represents a local society is of questionable value. If a man has merit he can get along very well without it; if he has not, a title will not create it. The double title of M.D., D.D.S. is bad enough without sandwiching M.D.S. between them.

Dr. Thraikill, editor of the *California Dental Fairus*, has shown us the absurdity to which this thing can be carried. In announcing an article from a dentist in New York, he seems to think he can add dignity to the writer by stringing a lot of glittering official beads—M D M D S D D S—around his neck, and then, evidently bemoaning the ingratitude of New York in not giving sanction to more, he proceeds to indicate what they should have made official, by tying on him an apron all bespangled with the following conspicuous titles, giving to capital letters what we suppose he suggests as the abreviations of the future:

"*Corresponding Editor of the Dental Fairus; Member International Medical Congress; American Dental Association; American Microscopical Society; New York Medical Association; Society of Natural Sciences; Erie County Medical Society; New York State Dental Society; New York Odontological Society; Honorary Member Pacific Coast Dental Society; Dental Society of Europe; Michigan State Dental Society; Illinois State Dental Society; Etc.*" And yet the man of such honors lives.

We have been a member of the Dental Association of New Jersey so long, and been so often honored by it, that we feel sensitive when we

see it taking a step which appears unwise. It has already an excellent law, giving power to grant certificates to practice dentistry on satisfactory evidence of qualification. If any would have more than this our colleges are open to them.

The qualifications of an examining board changed yearly by the votes of a State society—many members of which are anxious for the honor of being on it, but some of whom must give discredit to it, and therefore with the constant liability of fluctuation in its intellectual standing and in the motive which may govern its course—is not sufficiently reliable. Even if such societies are judicious in the selection of those constituting such a board, as has been so generally the case in the New Jersey society, yet outsiders will judge it by the general status of the society, which in most States is not any too good, and in all States too indefinite and too doubtful to give a professional title prestige, and the recipient professional standing.

No; brethren of New Jersey, be content with your certificate, and if any of you would go farther than this, get a good honest M.D., or a D.D.S. These are recognized everywhere and are known to mean something. Complicating titles indicating the same thing as M.D.S., and D.D.S., only confuses and tends to degrade both.

SELFISHNESS.

A selfish man does not belong to society—unless it is to prey upon all its best interests for his own relentless greed. Especially is he out of place in the professions, where benevolence must be a second nature, and kindness and sympathy inborn; where, from the very nature of our work, we must be the very guardians of others happiness, and where, to accomplish this, we must continually make self sacrifices with cheerfulness, and meet ingratitude with complacency.

Awkward, indeed, must that man be who attempts to act the part of physician or dentist while only simulating these noble qualities. For selfishness in its stealthy artfulness and its murderous greed, is a serpent fastening its glaring, fiery eyes upon its victims to draw them within its reach that it may twine about them its cold, cruel, crushing coils, and then, covering them with its slime, devour them alive. It knows no instinct but its insatiable appetite, and it respects no rights, and cares for no appeal, of its innocent, helpless victims.

Yet there are modern false lights who tell us all men are selfish! And this because all men choose to do what pleases them! All action selfish, whether hoarding money for its own sake, or spending it for the sake of doing good?—whether gormandizing to gluttony, or feeding the hungry?—whether stoically ignoring the distress, confusion and crime surrounding them, or spending time, money and brains in

changing all this to purity, harmony and happiness? Such reasoning is fallacious and does not spring from a healthy brain, a pure heart or a generous nature. We know instinctively that, between the voluptuary and the philanthropist, the scheming politician and the patriotic statesman, the niggardly miser and the warm-hearted Christian, there is a difference, and this difference is so radical we have no hesitation in declaring the one class selfish and the other unselfish; the one to be detested and shunned, and the other to be commended and imitated.

Be his professions what they may, that man is selfish who, in his common practice, subordinates others happiness to his own gratification; and that man is unselfish who, in his acts and plans and life, includes in his own the rights and interests and happiness of others. The mere fact that each does what gratifies him or feels sorrow for distress, does not show both to be of the same character. The selfish and the unselfish dentist may feel sorrow for inflicting pain, and pleasure in abating it; but the one is influenced by the consequence this has upon his own interests, the other by real sympathy for his patient. The selfish dentist may give to charitable objects, contribute to public improvements, and refuse compensation from the destitute, but the motive is the effect all this has upon his coffers. And cover that motive as cunningly as he may, the moral winds that blow about him, will at times discover his real character, when men will flee from him as from the leprous. Even a rent is not necessary. His very moral atmosphere will be surcharged with his character, and in spite of all devices men find him out.

Even the fact that the selfish man *takes pleasure* in acts of benevolence and love, does not disprove his selfishness, for it is his own pleasure he seeks, not that of others. No matter how much suffering he sees about him, or how amiable his friends, or even how lovable his own wife, if his acts toward them does not contribute to his own happiness, those acts cease, however much the pleadings of either may appeal to his moral sense. To be unselfish, there must be a respect, a painstaking and even a self-sacrificing for others good—often a self-abnegation which at times places their good quite above his interests, or even his life.

Can there be such a thing as a selfish Christian? We have seen men avoid wickedness from a mere fear of punishment, and seen them do good for the mere hope of reward, and this certainly comes to the verge of selfishness. If it is Christianity, it is certainly a very low type. Our motive for avoiding sin must be its wrong, and our motive for doing right must be because it is right. Our pleasure must be subordinate, and even our interests must be subservient to the great

work of life. In that work we shall find happiness, as in avoiding evil we escape misery; but if we would know the full meaning of the word happiness, we must know it mainly, as an overflowing stream which, by great painstaking, we have prepared for the benefit of others. Our joy must be the joy we give, and our goodness the goodness we impart. Not because we receive in the doing, but primarily because of the pleasure we impart. When we selfishly seek pleasure for its own sake, it is an *ignis fatuus* which allures to vex and deceive, but when it comes to us unbidden as the genii of duty and good deeds, it is genuine, satisfying and abiding.

IS IT A DEFEAT?

Prof. Huxley says; The body resembles an army; each cell a soldier; an organ a brigade; the central nervous system headquarters—a field telegraph; the alimentary and circulatory systems the commissariat, and in which losses are made good by recruits born in camp; and the life of the individual is the campaign: conducted successfully for a few years, but with certain defeat in the long run.—*Can. Lancet.*

This is a beautiful simile and wonderfully appropriate. How sad that a mind capable of forming such exquisite imagery should not be able to see with other than mere physical eyes, and to reason from a standpoint higher and broader than a physical view! Because the time comes when the real man no longer needs his physical structure, and therefore drops it to assume that "body as it hath pleased Him,'" is the campaign a failure? If the General commanding is faithful to his opportunities, it will be a wonderful success. Still more wonderful and glorious and triumphant will it appear when he enters as victor to be crowned King in his new kingdom.

Do not lie by saying you are busy when you are not; that your business is rushing when it is dull; that your appointments are for many days ahead, when you have none. Be truthful, always, and your patients will respect you for it.

We can be no better than our thoughts; for these are seeds planted by the mind in our hearts, where they are nourished by our desires and bring forth fruit in our actions, according to their character, whether they be good or whether they be evil.

Glycerine is preferable to oil for use on the sharpening stones; avoiding the *possibility* of oily hands or instruments. As glycerine readily unites with water the stone may be kept white and clean by occasionally washing. Mason.

IMPULSES.

We should be careful how we follow impulses—especially first impulses. The saying: "First impulses are best," is erroneous and dangerous. All the feelings are dangerous guides. If not curbed and guided by reason, they will almost always lead us astray. Desire, delight, exultation, anger, disappointment, remorse, left to themselves are like so many wild colts. Without the discipline, the control and direction of a discreet master, they may whirl us along to destruction. Let us then rather be guided by "the sober second thought;" think twice before we act once; consider well our course before we take it; measure the distance before we leap; know the ground before we take it;—for it is easier to keep out of trouble than to get out of it.

A NEW material has been invented which it is thought will supercede celluloid. It possesses all the hardness and brilliancy of the latter, and has the advantage of being fire proof. It is made in this way: A solution is prepared of 200 parts of casein in 50 parts of ammonia and 400 of water, or 150 parts of albumen to 400 of water. To the solution the following are added: Quicklime, 240 parts; acetate of alumina, 150 parts; alum, 50 parts; sulphate of lime, 1200 parts; oil, 100 parts. The oil is to be mixed in the last. When dark objects are to be made from 75 to 100 parts of tannin are substituted for the acetate of alumina. When the mixture has been well kneaded together and made into a smooth paste it is passed through rollers to form plates of the desired thickness. These are dried and pressed into metalic moulds previously heated, or they may be reduced to a fine powder, which is introduced into heated moulds and submitted to strong pressure. The objects are afterwards dipped into the following bath: Water, 100 parts; white glue, 6 parts; phosphoric acid, 10 parts. Finally, they are dried, polished and varnished with shellac.

NEARLY every month we are obliged, either to reject articles entirely, or to spend much time upon them, because they are slovenly written. We are ashamed to say it, but positively, some seem to think it shows literary merit to send us their first off-hand productions—perhaps in pencil at that.

Besides, do the best we can for such writers, we frequently fail to catch their meaning. Then they write to us their sorrow at being misrepresented, and we are sorry too. If really this is the best they can do would it not be well first to study the art of composition?

DR. WM. H. ATKINSON sent us the first subscription for the ITEMS in the new form, at $1.00 a year.

REMEMBER, you can control your patient better if you control yourself.

TEETH INJURED BY TOBACCO.

Dr. J. G. Harper, of St Louis, gives some sensible thoughts on this subject in the *Southern Dental Journal* for January. He contends that it is seriously injurious both by its mechanical effect upon the grinding surface of the teeth in chewing it, and by its irritating effect as it is forced between the teeth and on to the margin of the gum.

Its exhausting effects upon the glands of the mouth might also be mentioned, and its narcotic influence on the whole system. The effects of smoking does not wear the teeth nor leave pieces of tobacco between them, but it causes serious derangements in the glands, blood and nerves, which should be a sufficient warning against the habit.

But when we also consider its baneful moral, social and financial influences upon its devotees, and the community generally, we are astonished that there are so many intelligent men who will lend their influence and example to its use.

WE have found Rip Van Winkle. He is the editor of the *Dental Luminary*. He has just noticed the ITEMS OF INTEREST. He says: "The ITEMS OF INTEREST is a quarterly at 25 cents a year." When the editor of the *Luminary* went to sleep several years ago this was true, but while Rip has been sleeping, the ITEMS has gone through several stages of growth.

To dissolve rubber so that it can be used in mending rubber boots, cut the gum rubber (common vulcanized rubber cannot be used), into thin shreds, digest it in a corked bottle with eight or ten times its weight of warm benzole. Shake the bottle occasionally, and after several hours add more of the solvent if necessary.

LITTLE squares—say three by four inches—of fine unsized muslin, called nansook, is nice for drying teeth cavities and otherwise using about the mouth of a patient. We think it is better than bibulous paper or spunk. When once used they are easily washed and ironed, and thus made better than new.

THE French have this proverb: "Lie like a dentist"—originating no doubt, from the fact that in bygone days dentists when asked if a certain operation would hurt, invariably said no. I think that the greatest point in the successful management of children in the dental chair is to so gain their confidence that when you make an assertion they will not mistake you for one of those awful dentists to whom the French proverb refers. If a child is once convinced that you are its friend, and will give it no unnecessary pain, you can do with it as you like.—*Dr. G. L. Parmele, in New England Journal.*

WHAT NEXT.

In the last ITEMS we published an extract from the circular recently sent out by the Central Committee of the Dental Dealers' Combination in words which we consider were adroitly chosen to warn all dealers in the Combination to avoid us in their dealings, and asserting falsities to be circulated against us. One dealer was so conscientious that, while he felt bound to obey its mandate, assured us in the most sincere manner that he was very sorry. We this month present a circular, direct from the SS trying to head us off in the sale of liquid gas. We do not blame them for feeling a little nettled at the number of dentists who are coming to us for gas, but we do blame them for the way they show it. They dare not attack us on the quality of our gas —(We should like a public opportunity of comparing the nitrate of ammonia of which ours is made with that which they use. We do not mean the kind of ammonia that they sell to dentists to make their gas of—*that* is of the same quality of which our liquid gas is made.) But to the circular: This will show to what an extremity they are driven in their effort to suppress us.

[*The White Circular.*]

SPECIAL NOTICE.

We have reason to believe that the iron used in many of the large cylinders on the market is not of good quality, and the workmanship is not what it should be, in view of the enormous pressure to which they are subjected when filled with liquefied Nitrous Oxide.

More than two years ago we discontinued filling cylinders of more than 500 gallons' capacity and after careful and thorough investigation of the subject, arranged for the manufacture of a special iron adapted for the purpose, of which all of our large cylinders have since been constructed, in the best manner and without regard to cost.

In filling a cylinder believed to be of inferior quality, we should incur a responsibility that we are not willing to assume. The danger in the filling and handling of large cylinders, which are not, both in material and workmanship, of first quality is not imaginary, and we are unwilling to take any unnecssary risks. or to subject others thereto.

The above does not apply to 100-gallon cylinders, and we have no reason to doubt their safety.

Our customers will therefore please take notice, that hereafter we will not fill cylinders of over 100-gallons' capacity, except those of our own manufacture.

January, 1883. THE S. S. WHITE DENTAL MF'G. CO.

We answer:—1st. Our cylinders are all made by the same manufacturers—Morris, Tasker & Co.—who have made many of those bearing the trade-mark of, and now sent out by SS.

2nd. Both theirs and ours are made of wrought iron tubing. Ours is of the best quality in the market; we would not intimate theirs is of inferior quality.

3d. The firm above referred to—Morris, Tasker & Co.— is among the heaviest and most reliable manufacturers in the United States. The SS know this. We challenge them to say one word against them unless it is that they make cylinders for us. (They invariably leave any firm who works for us.)

4th. Though we would not retaliate by a reflection upon the gen-

tleman—Mr. Allison—who now makes cylinders for the S. S. W., we claim for ours an extra care. We test every cylinder ourselves, requiring each to bear 2,500 presssure to the square inch, which is very nearly double the pressure liquid gas requires. We are informed, upon what we consider good authority, that the S. S. W. assume the strength of theirs as they come from the hands of the maker. Is this not so, Messrs. S. S. W.?

5th. Though our cylinders are made of similar iron and in a similar manner, they are stronger than a large portion of theirs, because much heavier. Every one of our 100 gallon cylinders weighs over 12 pounds, while many of those sent out by S. S. W. weigh less than 8½ pounds. None of our 500 gallon cylinders weigh less than 32 pounds, many of those used by S. S. W. weigh less than 25 pounds. To specify: take the two last of theirs received by us from dentists who have come from the S. S. W. to us for their liquid gas. These are numbered by S. S. W. (so that they will not dare to dispute their weight) 2027 and 475. The first weighs 24½ pounds and the latter 22 1-16 pounds.

6th. But they especially emphasize the weakness of our 500 gallon cylinders. Why? Though they have subjected them to a severe test they have found none weak. *Privately* they know they are as strong as the strongest of theirs and stronger than their light ones which they are continually sending out; *publicly* they warn dentists to avoid ours and take their's. Samuel S. White would not have done such a thing as that! But while they have found no flaw or weakness in ours, theirs have bursted in more than one, or two, or three instances.

Did they by this circular intend to forestall our calling attention to this fact? But we will not retaliate.—The strength of ours we *know*, for we subject the 500 gallon cylinder to the same test—2,500 pounds to the square inch—as we do the 100, and not one has been found wanting.

7th. But to clinch the fact of the strength of our 500 gallon cylinders as compared with those sent out by S. S. W., *we challenge you, Messrs. Samuel S. White Dental Manufacturing Company to a test.* You may arrange every detail, if you will accord us two things: a trial that shall be public, and the privilege of publishing in the ITEMS OF INTEREST, *and in the Dental Cosmos*, the report of the experts employed. Do you accept? If not "forever after hold your peace."

8th. But just one word more before we leave this Giant Company which overshadows more than seventy dental depots, and has come out to swallow us up. We know we are a little folk but we do claim the right to live. You say: "Our customers will therefore please take notice that hereafter we will not fill cylinders of over 100 gallons capacity except those of our own manufacture." We are inclined to think you will not hereafter have many opportunities. The business has grown upon us so fast that heretofore a few of your (former) customers have been obliged to return to you for gas; for we could not fill their orders. With the first of February our capacity for manufacture will be more than doubled, so that we shall expect to relieve you of all inconvenience, even in many instances of filling your own. *And* though you and we receive more in proportion for filling 100 gallon cylinders than for 500 gallons, *we* will not try to scare "our customers" into taking our smaller cylinders when we know it is against their own advantage and convenience—500 gallons in 100-gallon cylinders costs the dentist $25.00, but in one 500-gallon cylinder $20.00. Who gets the $5 extra profit.

T. B. WELCH & SON.